

EFFECTS OF TRAINING ON TEACHER'S USE OF EARLY LITERACY STRATEGIES  
DURING BOOK READING

By

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degree of Doctor of Philosophy

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## Abstract

This dissertation document consists of four independent but related components including an introductory overview of all four components (i.e., Chapter 1), a literature review (i.e., Chapter 2), a research report (i.e., Chapter 3), and a research to practice description of the intervention (i.e., Chapter 4). The introductory overview presents a synopsis of the information presented in chapters 2 to 4. The literature review presents an examination of the research and professional literature on professional development for early childhood educators with a particular emphasis on the content area of early literacy. The dissertation research study reported in chapter 3 uses a multiple baseline design to assess the efficacy of specific professional development activities in the content area of early literacy. Specifically, the study is designed to determine the following: (a) whether teachers can learn new content related to early literacy and subsequently apply the new content during book reading sessions with children, and (b) whether implementation of the new content impacts child engagement during book reading sessions. The final component, research to practice report, provides a practitioner focus description of the intervention. That is, how early childhood teachers can enhance their book reading sessions through the use of specific strategies and techniques, and ultimately, support children's early literacy skill development.

## CHAPTER 1

### Overview: Investigation, Purpose, and Scope of Dissertation Research

Professional development in the field of early childhood education has recently become a hot topic due in large part to the increased focus on standards and accountability. Further, professional development is “widely viewed as the most effective approach to adequately preparing practitioners and improving their instructional and intervention practices after they enter the workforce,” (Buysse, Winton, & Rous, 2009, p. 235). A variety of approaches to early childhood professional development have emerged as a means for providing practitioners with guidance, access to new content and instructional strategies, and information on their own efficacy. However, clear and agreed upon definitions of many currently promoted approaches (e.g., coaching), how and when each approach should be used to enhance professional development, and if the approaches are truly effective in improving professional practices are not available (Buysse et al., 2009).

Current research, however, has suggested mixed outcomes with some researchers reporting that professional development can be helpful in improving program quality (e.g., Galinsky, Howes, & Kontos, 1995), but others arguing that, in general, studies have not conclusively demonstrated benefits in terms of positive child outcomes (e.g., Ramey & Ramey, 2008). In addition, the scope, content, and delivery of professional development have varied broadly with limited research assessing the relative effectiveness of different approaches (Whitebook, Gomby, Bellm, Sakai, & Kipnis, 2009). Dickinson and Caswell (2007) provided professional development through a credit bearing course which resulted in enhanced classroom practices related to literacy and language. Another approach that was found to have some impact on teacher’s practices, and subsequently children’s skills, used a combination of satellite delivery

of content with site-based coursework (Jackson et al., 2006). Stronger evidence of effectiveness, however, has come from professional development interventions that utilize some form of coaching (Wasik & Bond, 2001; Wasik, Bond, & Hindman, 2006). Therefore, there is a continued need for a better understanding of the features of effective professional development for early childhood educators.

Given the multiple content areas in which professional development can be targeted, early literacy has emerged as a particularly critical area, especially in terms of children's later reading achievement. Children entering kindergarten who have emergent competence in early literacy skills (e.g. letter knowledge, print awareness) demonstrate higher levels of reading achievement in their early elementary years than children who lack these skills (National Reading Panel, 2000). However, research suggests that early educators often do not have the necessary knowledge and/or skills to foster early literacy development in young children, despite their best efforts and willingness to engage in recommended practices (Gest, Holland-Coviello, Welsh, Eicher-Catt, & Gill, 2006; Lynch, 2009).

The purpose of this dissertation document is threefold. First, a review of the research literature with respect to professional development for early childhood educators is presented in order to better understand the elements of effective professional development and the implications of our current knowledge on designing and implementing professional development activities. Second, a single-subject design study was conducted and the outcome are reported in order to assess the effectiveness of a set of professional development activities provided to teachers that includes initial training and ongoing coaching within the context of book reading sessions with children. The final purpose is to provide a practitioner focus description of the intervention. That is, a description of how early childhood teachers can enhance their book

reading sessions through the use of specific strategies and techniques, and ultimately, support children's early literacy skill development.

## **Review of the Literature**

The literature review, presented in chapter 2, provides an overview of the research and professional literature on professional development for early childhood educators with a focus on the content area of early literacy. The review begins with a proposed definition of professional development including the current emphasis on and multiple definitions of professional development. Next, a demonstration of how aspects of a specific professional development framework can be applied to the creation of professional development activities specific to the content area of early literacy skill development for preschool aged children is explored. Finally, an illustration of how to design and implement professional development activities for early educators on early literacy skill development will be addressed through: (a) a focus on the goals of the activities, and (b) considerations for delivery of the training. Implications for the intervention activities are discussed including the need for conducting efficacy research, which is the purpose of the dissertation study.

## **Research Study**

A single-subject multiple baseline design was developed and implemented to extend the research on effective professional development for early childhood teachers. Within this investigation, behaviors of teachers were examined to determine if teachers can learn and implement new content (i.e. strategies of dialogic reading, print referencing, and quality of interactions) during book reading sessions. Additionally, child behaviors were examined to determine whether teacher's use of these strategies resulted in changes in level and complexity of engagement. Findings indicate that teachers were effective in learning and applying new content

in which their use of dialogic reading, print referencing, and quality of interactions strategies increased after the intervention training. Impact on child participants was mixed in terms of change in level and complexity of engagement during book reading sessions. This investigation is thoroughly discussed in chapter 3 including methods, setting, experimental design and procedures, measurement, results, and discussion.

### **Research to Practice**

Finally, in chapter 4, a description of the intervention content is provided using the information gained from the literature review. The purpose of the concluding chapter is to provide a practical and user-friendly description of the strategies and techniques that can be used to enhance book reading sessions for children, and ultimately support children's early literacy development. Thus, other practitioners after reading the chapter would be able to utilize the suggested strategies within their own classrooms.

## References

- Buyse, V., Winton, P.J., & Rous, B. (2009). Reaching consensus on a definition of professional development for the early childhood field. *Topics in Early Childhood Special Education*, 28(4), 235-243. doi: 10.1177/0271121408328173
- Dickinson, D. K., & Caswell, L. (2007). Building support for language and early literacy in preschool classrooms through in-service professional development: Effects of the Literacy Environment Enrichment Program (LEEP). *Early Childhood Research Quarterly*, 22, 243–260.
- Galinsky, E., Howes, C., & Kontos, S. (1995). The Family Child Care Training Study: Highlights of findings. New York: Families and Work Institute.
- Garet, M., Porter, S., Andrew, C., & Desimone, L. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915–945.
- Gest, S. D., Holland-Coviello, R., Welsh, J. A., Eicher-Catt, D. L., & Gill, S. (2006). Language development subcontexts in Head Start classrooms: Distinctive patterns of teacher talk during free play, mealtime, and book reading. *Early Education and Development*, 17(2), 293–315.
- Jackson, B., Larzelere, R., Clair, L. S., Corr, M., Fichter, C., & Egertson, H. (2006). The impact of HeadsUp! Reading on early childhood educators' literacy practices and preschool children's literacy skills. *Early Childhood Research Quarterly*, 21, 213–226.
- Lynch, J. (2009). Preschool teachers' beliefs about children's print literacy development. *Early Years: An International Journal of Research and Development*, 29(2), 191-203.



National Reading Panel (2000). *Teaching children to read*. U.S. Department of Health and Human Services. Washington, D.C.

Ramey, S.L., & Ramey, C.T. (2008). Establishing a science of professional development for early education programs: The knowledge application information systems theory of professional development. In L.M. Justice & C. Vukelich, (Eds.), *Achieving excellence in preschool literacy instruction*, (pp. 41-63). New York: Guilford Press.

Wasik, B., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, 93, 243–250.

Wasik, B. A., Bond, M. A., & Hindman, A. H. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology*, 98(1), 63–74. doi: 10.1037/0022-0663.98.1.63

Whitebook, M., Gomby, D., Bellm, D., Sakai, L., & Kipnis, F. (2009). *Effective teacher preparation in early care and education: Toward a comprehensive research agenda. Part II of Preparing teachers of young children: The current state of knowledge, and a blueprint for the future*. Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California at Berkeley.

## CHAPTER 2

### The Effects of Training on Teacher's Use of Early Literacy Strategies: A Literature Review

#### Abstract

A review of the extant research and professional literature on professional development for early childhood educators, with a focus on the content area of early literacy, is presented. The review begins with a proposed definition of professional development including the current emphasis on and multiple definitions of professional development. Next, a demonstration of how aspects of a specific professional development framework can be applied to the creation of professional development activities specific to the content area of early literacy skill development for preschool aged children is explored. Finally, an illustration of how to design and implement professional development activities for early educators on early literacy skill development will be addressed through: (a) a focus on the goals of the activities, and (b) considerations for delivery of the training. Implications for the intervention activities are discussed including the need for conducting efficacy research in the area of professional development for early childhood educators.

## Chapter 2

### The Effects of Training on Teacher's Use of Early Literacy Strategies: A Literature Review

The skills and abilities young children develop in the early learning years provide the foundation for later academic achievement and success (Koles, O'Connor, & McCartney, 2009). The role of the early childhood educator in ensuring that children are supported in the early learning years cannot be underestimated. Research has shown that specific teacher characteristics are important in positively impacting children's development, namely: (a) educational background (Barnett, 2003; Bowman, Donovan, & Burns, 2001; Pianta, et al., 2005), (b) relationships with children (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre, Pianta, Mashburn, & Downer, 2007), and (c) interactions with children (Howes et al., 2008; Kontos & Wilcox-Herzog, 1997; Mashburn et al., 2008). Given the association between early childhood educators' characteristics and children's development, the critical role of professional development emerges as a means to facilitate continued development of teacher's knowledge, skills, and abilities.

One way in which the goal of enhanced development for all children can be targeted is to examine whether professional development for teachers results in teachers providing quality learning experiences that support and foster children's early development (Whitebrook, Gomby, Bellm, Sakai, & Kipnis, 2009). When children are supported by early educators and caregivers who utilize effective interactional and instructional strategies that are sensitive to emerging developmental skills, the children have been shown to perform at more advanced developmental levels (Howes, 1997). Current research, however, has suggested mixed outcomes with some researchers reporting that professional development can be helpful in improving program quality (e.g., Galinsky, Howes, & Kontos, 1995), but others arguing that, in general, studies have not conclusively demonstrated benefits in terms of positive child outcomes (e.g., Ramey & Ramey,

2008). In addition, the scope, content, and delivery of professional development have varied broadly with limited research assessing the relative effectiveness of different approaches (Whitebrook et al., 2009). Dickinson and Caswell (2007) provided professional development through a credit bearing course which resulted in enhanced classroom practices related to literacy and language. Another approach that was found to have some impact on children's skills and teacher's practices combined satellite delivery of content with site-based coursework (Jackson et al., 2006). Stronger evidence of effectiveness has come from professional development interventions that utilize some form of coaching (Wasik & Bond, 2001; Wasik, Bond, & Hindman, 2006). Although we have preliminary evidence for elements of professional development, there is a continued need for a better understanding of the features of effective professional development for early childhood educators.

Given the multiple content areas in which professional development can be targeted for early childhood educators, early literacy has emerged as a particularly critical area, especially in terms of children's later reading achievement. Children entering kindergarten who have emergent competence in early literacy skills (e.g. letter knowledge, print awareness) demonstrate higher levels of reading achievement in their early elementary years than children who lack these skills (National Reading Panel, 2000). Early experiences that support later school success, particularly within the context of reading achievement, can also be those experiences that promote early literacy development in young children. Activities such as listening to stories (Wells, 1985), thinking about stories heard (Karweit & Wasik, 1996), and being exposed to unfamiliar vocabulary (Snow, 1991) have been shown to be critical in supporting the acquisition of early literacy skills. Therefore, the need to support these activities within early educational experiences becomes paramount to later school success (Snow, Burns, & Griffin, 1998).

In order to positively impact and expand a child's knowledge base with regard to early literacy skills, early educators must be knowledgeable about and have a firm grasp on how to provide instruction and arrange environments that support children's developing literacy skills. However, evidence suggests that there is great variability in the language and literacy environments provided to preschool children by both their early educators and the expectations for early literacy within early childhood programs (Gest, Holland-Coviello, Welsh, Eicher-Catt, & Gill, 2006). Work on letters and sounds (Stipek, 2004), use of language with children (Girolametto, Weitzman, van Leishout, & Duff, 2000), and reading books with young children (Dickinson & Smith, 1994; Justice, Meier, & Walpole, 2005) have all been shown to have great variability in frequency and quality of implementation by early childhood educators. In a qualitative study of 8 preschool teachers, Lynch (2009) found five emerging themes regarding teacher's beliefs about literacy development. Among those themes were: (a) uncertainty about best practices regarding children's literacy development, (b) limited access to professional literacy knowledge, and (c) a desire for more literacy knowledge to support their practices. This research suggests that early educators often do not have the necessary knowledge and/or skills to foster early literacy development in young children, despite their best efforts and willingness to engage in recommended practices.

The purpose of this paper is to review the research literature with respect to professional development for early childhood educators in order to better understand what critical elements of effective professional development have been identified and how those then are translating into designing and implementing professional development activities. While multiple content areas within the field of early childhood education have been the focus of professional development, early literacy will be utilized in this review to illustrate the translation aspect. In the first section

of this paper a definition of professional development will be proposed. To begin, a general discussion of the current emphasis on professional development, including multiple definitions for the term professional development, will be presented and the first section of the paper will end with a description of six key guiding assumptions to consider in designing professional development as proposed by Buysse, Winton, and Rous (2009). The second section of the paper demonstrates how aspects of Buysse and colleagues' professional development framework can be applied to the creation of professional development activities specific to the content area of early literacy skill development for preschool aged children. The illustration of how to design and implement professional development activities for early educators on early literacy skill development will be addressed through: (a) a focus on the goals of the activities, and (b) considerations for delivery of the training.

### **Defining Professional Development**

Professional development in the field of early childhood education has recently become a hot topic due in large part to the increased focus on standards and accountability. Further, professional development is "widely viewed as the most effective approach to adequately preparing practitioners and improving their instructional and intervention practices after they enter the workforce," (Buysse et al., 2009, p. 235). Key characteristics of effective professional development have begun to emerge from the literature on adult learning (Darling-Hammond & McLaughlin, 1995; Putnam & Borko, 2000). Among those characteristics is a conceptualization of professional development as a lifelong pursuit of learning that is active, collaborative, and embedded within a classroom context (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995). Further, it has been recommended that professional development be implemented in such a way that a more inclusive approach, as compared to a one shot in-service training, be more

widely utilized (Boudah, Logan, & Greenwood, 2001). Finally, in an effort to impact change in teacher's long term skills and performance, the National Center for Education Statistics (1999) suggests there needs to be continuous opportunities for learning by increasing teacher's time in professional development and participation in on the job learning.

What is meant by the term professional development? Professional development in the field of early childhood education describes activities or experiences that are meant to enhance the knowledge, skills, and/or attitudes of those who serve children, birth to age 8, and their families (Bruder, Mogro-Wilson, Stayton, & Dietrich, 2009; Sheridan, Edwards, Marvin, & Knoche, 2009). The long-term, indirect effects of professional development are aimed at enhancing children's learning across cognitive, communicative, social-emotional, and behavioral domains (Guskey, 2000, 2001). According to Sheridan and colleagues (2009), professional development in early childhood takes place to: (a) advance the knowledge, skills, dispositions, and practices of early childhood providers, and (b) promote high-quality practices that are self-sustaining and growth producing, both at the system and individual level. Understanding what is involved in advancing practitioners' knowledge, skills, abilities, and dispositions as well as the resulting impact on long-term growth and sustainability must include a discussion of the different forms of professional development commonly provided to early childhood educators.

In general, professional development in early childhood has taken the following forms: (a) formal education, (b) credentialing, (c) specialized, on the job inservice training, (d) consultative and/or coaching interactions, and (e) communities of practice (Zaslow & Martinez-Beck, 2006). While these forms all fall under the umbrella of professional development, formal education and credentialing can best be described as pre-service education

while specialized training, consultation/coaching, and communities of practice can best be described as inservice education.

In terms of pre-service or formal education and credentialing, most early childhood advocates are suggesting that early childhood educators have at least a bachelor's degree, often also including a major in early childhood education or state teacher certification or licensure to teach this age group (Barnett, 2003; National Research Council, 2001). The push for every early childhood educator to have a bachelor's degree is drawn from two lines of research: (a) studies, frequently from community based child-care settings, linking teacher's education to classroom quality, and (b) research connecting early care and education classroom quality to children's academic gains (Early et al., 2007). Therefore, formal or pre-service education is one important context under which professional development can be delivered to early childhood educators.

A second context under which professional development can be delivered to early childhood educators is through inservice education or training. One type of inservice education, specialized on-the-job training, typically takes place outside of a formal education system, provides specific skill instruction or skill building content for direct classroom application (Tout, Zaslow, & Berry, 2006), and may be delivered via workshops, presentations, and live or Web-based lectures or discussions. A second form of inservice education is coaching and/or consultative interactions. Coaching interactions are utilized to improve teacher's learning and application of child-specific interventions or teaching strategies and typically include frequent interactions over a short period of time (Sheridan et al., 2009). Consultative interactions focus on helping the educator within their professional role with children, through problem solving and professional support, to address an immediate concern or problem, and generally are highly individualized (Buysse & Wesley, 2005; Sheridan & Kratochwill, 2008). As with coaching,



consultative interactions occur more frequently at the beginning of a professional development experience and eventually fade over time. While coaching and consultative interactions provide learning and support for a short time and on a more individualized basis, communities of practice represent learning on a larger scale. Communities of practice are groups of people who come together with a common desire to improve their practice in a particular area through sharing knowledge, insights, and dispositions (Wenger, 1998). Much information has been gathered on practices that are likely to ensure the effectiveness of in-service training achieving the outcome of improved services for young children and ongoing research continues to add to our knowledge base.

As previously discussed, a variety of approaches to early childhood professional development have emerged, both within pre-service and inservice contexts, as a means for providing practitioners with guidance and feedback. However, it is unclear what each of these approaches means, how and when they can be used to enhance professional development, and if they are truly effective in improving professional practices (Buysse et al., 2009). Therefore, it is necessary that a definition of professional development in early childhood education be developed and validated. Through a review of the literature, Buysse and colleagues identified six key assumptions that guided the development of a proposed definition and framework of professional development. The six key assumptions are as follows: (1) the term professional development includes all types of learning opportunities, (2) the early childhood workforce is incredibly diverse with respect to their roles, qualifications, and education, (3) families are partners in all aspects of early education, including professional development, (4) the role of learners of professional development is to actively engage in the learning experiences, (5) the role of providers of professional development is to provide learning experiences that respond

directly to problems in practice by promoting practices that are evidence-based, and (6) professional development can be conceptualized as three intersecting components (the *who*, the *what*, and the *how*) that provide an organizing framework for planning and evaluating professional development.

### **Designing and Implementing Effective Professional Development**

While all six assumptions presented above are important considerations when developing a professional development program, only two will be adopted and modified for the purposes of this review: (a) the role or purpose of providers of professional development is to respond directly to problems in practice by promoting evidence-based practices, and (b) aspects to consider for delivery of professional development, i.e. the *who*, the *what*, and the *how*. These two assumptions are particularly relevant to this review as early literacy development is critical for young children, yet, early educators are often not knowledgeable about and do not have the skills necessary to appropriately address development in this domain. Therefore, it is the responsibility of the providers of professional development to address this problem through training opportunities that provide evidence-based instructional practices and take into consideration who the educators are, what knowledge and skills are most needed, and how knowledge and skills can best be delivered.

The following sections will more fully describe the two assumptions (i.e., identifying purpose of professional development and delivery considerations). To aid the reader in understanding how to translate these assumptions into the actual design and implementation of effective professional development activities the content area of early literacy will be used.

#### **Identification of Purpose**

A first step in designing and implementing effective professional development activities is to understand why professional development is needed and the anticipated outcome or change that one expects to achieve. Buysse and colleagues (2009) have suggested that a key responsibility of providers of professional development is to (a) respond directly to problems in practice by (b) promoting practices that are evidence-based and recommended by the field of early education. The starting point for designing effective professional development is identifying or defining outcomes for children and families, followed by outlining the professional competencies necessary to achieve this outcome (Winton, Buysse, & Zimmerman, 2007). In terms of this review, the specific outcome is improved early literacy skill development for young children as a critical first step towards successful reading achievement in later years. To achieve this outcome, early literacy skills must be taught during the preschool years, yet, early educators often lack appropriate knowledge and/or skills in the area of literacy thus potentially impacting children's development (citation). In order to address this problem, early educators must have access to the skills and practices that are empirically validated through research, recommended by the early childhood field, and can be integrated into their current teaching practices and thus defined as evidence-based.

Research in the field of general and special education has increased dramatically over the last 25 years, and with it the notion of evidence-based practice (EBP) as it relates to scientific research and effective educational practices has become a hot topic among policymakers, practitioners, educational researchers, and consumers (Odom, et al., 2005). Rooted in the field of medicine in an attempt to address the gap between research and practitioner's medical care, evidence-based practice as a movement is now a central part of education in the field of medicine and other health-related disciplines. The current movement towards evidence-based practice in

the field of education is driven by the concern that effective educational practices, as proven by research, are less evident in schools.

Evidence-based practice in the field of early childhood, which is not unanimously defined by the field, influences many aspects of educating young children and their families. A recent report of the National Research Council Committee on Research in Education (NRCCRE, 2005) determined that the driving force to use evidence to make informed practice decisions is expected to have an impact on almost everything we do from conducting research, to making public policy, to providing quality services to young children and families. In this era of standards and accountability, it has become increasingly more critical that practitioners utilize practices that are founded in research and focus on “what works” to meet the most current demands of demonstrating direct causal linkages between specific interventions and children’s progress in learning and development (Buysse, Wesley, Snyder, & Winton, 2006).

In the next sections, a specific problem in practice along with two evidence-based practices related to the problem will be presented to illustrate how identification of the purpose can help to shape the design of the professional development. The problem in practice to be targeted is: (a) the lack of knowledge and/or training of preschool teachers about early literacy strategies, as well as the importance of children’s development of early literacy skills in terms of implications for their long-term success in learning to read. Thus, with the problem in practice being focused on early literacy instruction, two evidence-based early literacy practices will be used to illustrate the implementation of the promotion of the use of evidence based practices. The two practices are dialogic reading and print referencing.

**Respond to problems in practice.** Knowledge about how to provide maximum support for children’s early literacy development may not be widespread among preschool teachers

(Burns & Stechuk, 2003). Further Crim and colleagues (2008) found that the preschool teachers had an overall lack of knowledge with regards to basic early literacy skills. Therefore, this gap in knowledge and/or training among preschool teachers needs to be addressed. To further emphasize this issue, a brief discussion of the implications for children who do not develop early literacy skills as a possible result of teacher's lack of knowledge and/or training follows.

***Lack of knowledge and/or training.*** Children who enter kindergarten with limited literacy and language skills unfortunately are rarely able to catch up (Whitehurst & Lonigan, 1998). Thus, the burden partially falls on preschool teachers to explicitly teach content in the area of early literacy skill development. However, not all children are receiving the necessary instruction to lay the foundation for later reading success. This can be due, in part, to the mismatch that exists between the preparation of early educators and the preparation needed to optimize instructional practices (Landry, Anthony, Swank, & Monseque-Bailey, 2009).

Much of the focus, and thus research, on teacher education in terms of literacy development has been centered on kindergarten and the early elementary grades where much of the reading instruction takes place. Further, researchers are not always able to agree on what teachers at each level should know about literacy (Cunningham, Zibulsky, & Callahan, 2009). Therefore, it becomes very difficult to determine exactly what preschool teachers should know and be able to do in terms of early literacy instruction, and then provide this information to them in pre-service education programs. Research suggests that among pre-service education programs, those that lead to a baccalaureate degree better predict higher quality skill attainment for teachers (Burchinal, Cryer, Clifford, & Howes, 2002). Despite the strong association between formal education and quality, the preschool workforce includes a significant number of teachers with minimal professional development in terms of having earned a college degree (Bowman et

al., 2001). Recognizing the need to improve the link between courses and degrees and the quality of teacher's instruction, efforts are underway to develop higher education courses that produce knowledge and skills in both of these areas (Pianta, et al., 2006). In the meantime, high-quality professional development becomes a very important consideration. Although preschool teachers may not have the formal educational background in literacy instruction, effective professional development has been shown to improve the quality of early childhood programs (Howes, Phillips, & Whitebook, 1992; Kontos, Howes, & Galinsky, 1997). Therefore, professional development may remedy inadequate teacher preparation, which is not uncommon in early childhood education.

In addition, there is growing evidence that preschool teachers need focused training to improve their knowledge about high-priority skill targets in language and literacy development (Justice & Ezell, 1999; Landry, Swank, Smith, Assel, & Gunnewig, 2006; Lonigan, 2004). Research has found that children can benefit from teacher training. In fact, Podhajski and Nathan (2005) found that children who attended a child care center with a teacher who had been trained in how to enrich early literacy skills, demonstrated a greater increase in those skills compared to those children who attended a center where the training was not available. Furthermore, teachers trained in addressing early literacy skills are more likely to have children who show gains in literacy skill development that carry into kindergarten (Whitehurst & Lonigan, 1998; Zevenbergen et al., 1997). In fact, reading experts now estimate that if children have experiences with these foundational skills during the preschool years, as few as 5% of them may experience reading difficulties, compared to the current level of 20% to 30% (Snow et al., 1998).

Furthermore, the reality of preschool is such that preschool programs often serve as temporary training grounds for teachers who are working on graduate degrees in elementary

education (Beauchat, Blamey, & Walpole, 2009). Often the low wages and taxing nature of preschool classrooms lead to high levels of turnover. Providing incentives including higher wages and opportunities for career building in the form of training may help to curb teacher attrition and build confidence and competence (Beauchat, et al, 2009). Carefully designed in-service professional development may help to mediate the effects of attrition and turnover.

***Importance of early literacy skill development.*** Learning to read has become one of the most important skills of childhood with children who experience difficulties with learning to read being at a greater risk for possible academic failure later in their careers (Hagtvet, 2000). Research has documented that children who are poor readers in early elementary school often remain poor readers throughout the rest of their education (Lyon, 1998; Snow et al., 1998). Unfortunately, the long-term prognosis for poor readers does not improve with age, as documented by (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996), who found that 74% of children identified as poor readers in the third grade, remained poor readers in the ninth grade. Whitehurst (2001), reports that children are not only at-risk for school failure but are also more likely to struggle with social and emotional issues, delinquency, and drug abuse. Therefore, it is essential to address this issue when children are young emergent language learners and before they fail at learning to read (Podhajski & Nathan, 2005).

The acquisition of early literacy skills has become an important topic both in research (National Reading Panel, 2000; Neuman, Copple, & Bredekamp, 2000; Snow et al., 1998) as well as in national legislation with the enactment of the No Child Left Behind Act in 2001. The importance of early language and literacy experiences has been well documented in the research literature (Abbott-Shim, Lambert, & McCarty, 2003; Adams, 1990; Barnett, 2001; Dickinson & Smith, 1994; National Early Literacy Panel, 2008; Wasik et al., 2006). Emergent or early literacy

can be thought of as the foundational knowledge children acquire prior to formal schooling and bring to the task of learning to read (Justice & Pullen, 2003). Emergent literacy skills encompass a broad range of behaviors and knowledge such as understanding the function and form of print and the relationship between oral and written language (Justice & Ezell, 2001), recognizing words as distinct elements of print and speech (Bowey, Tunmer, & Pratt, 1984; Tunmer, Bowey, & Grieve, 1983), and an understanding of the phonological structure which underlies both spoken and written language (Ball, 1997; Lonigan, Burgess, Anthony, & Barker, 1998). This diverse base of knowledge represents the underlying structure of oral and written language and is acquired during the years before formal literacy instruction begins (Justice & Pullen, 2003).

Generally speaking, children who show difficulties with these early literacy skills are more likely to experience literacy problems, relative to same-age peers who are acquiring these skills following expected developmental milestones (Pullen & Justice, 2003). Children who are poor readers struggle with such reading related tasks as comprehension, fluency, and overall read less and thus have less exposure to language and literacy as a result of reading (Cunningham & Stanovich, 1998; Echols, West, Stanovich, & Zehr, 1996). Further, children who arrive in first grade with a foundation in pre-literacy skills and the interest and motivation to learn are better prepared to engage in the complex task of learning to read compared with children who lack these foundational skills (Lonigan & Whitehurst, 1998). It is clear that children who do not develop the foundational early literacy skills previously discussed, struggle with many aspects of reading and reading related activities.

Even before becoming fluent readers, young children are acquiring early literacy skills such as alphabet knowledge, phonemic awareness, and vocabulary development all of which help to form the foundation for more sophisticated conventional literacy skills. Further,



children's development of competence in these early literacy skills during the preschool years has been identified in the literature as important for later success in reading (Paez, Patton, & Lopez, 2007). Since children learn literacy content in a social context, the literacy environment of young children is critical to their successful literacy/language development (Morrow & Paratore, 1993; Sulzby, 1996). Meaningful experiences during the early learning years can provide language opportunities to enhance and sustain language and literacy growth.

Preschool environments provide a naturalistic means by which early literacy skills can be embedded into the daily routines of the classroom. Through reoccurring daily activities such as singing songs, storybook reading, nursery rhymes, writing, and storytelling, children are learning about literacy (Henk, Morrison, Thornburg, & Reya-Carlton, 2007), and early literacy development is being promoted. Preschool teachers are in a position to influence the development of children's early literacy skills. With an emphasis on early literacy skill development on a more global scale, comes a more focused emphasis on preschool teacher's ability to facilitate development of these skills (Podhajski & Nathan, 2005; Whitehurst & Lonigan, 1998).

**Promoting evidence-based practices.** Given that enhanced early literacy instruction by the preschool teacher has been identified as the problem in practice, the next step in designing the professional development activities is selecting and then promoting the implementation of evidenced based early literacy practices that address the "problem." For the purposes of this literature review, the promotion of literacy related evidence-based practices within the context of shared book reading are the focus. Shared book reading between adults and children has long been considered a valuable educational practice, aimed at enhancing the language and literacy development of young children, excitement about and appreciation for books, and is considered

to be an enjoyable activity (Hindman, Connor, Jewkes, & Morrison 2008). Typically a shared book reading session consists of an adult reading a book to a group of children in which the adult may or may not engage the children in a discussion about the book or other related ideas (What Works Clearinghouse, 2006). Whether or not children become interested in books and their content is dependent on a social context developing between adult and child in which there is a social interaction taking place (Mol, Bus, de Jong, & Smeets, 2008). Further, book reading may be most effective when adult readers seek to actively involve the child in verbal exchanges during shared book reading (Huebner & Meltzoff, 2005).

Book reading between teachers and children can reach maximum potential in terms of level of learning for children when they have opportunities to actively participate and respond (Morrow & Gambrow, 2001). To reach the goal of maximum learning potential, teachers must be providing supports to children during book reading sessions consistently and with fidelity. However, this is not always the case. In their extensive research, Dickinson and Tabors (2001) found that many of the preschool teachers they observed lacked the skillful intentional instruction methods found to be most beneficial to children. Specifically, research (Dickinson & Tabors, 2001; Lonigan & Whitehurst, 1998) suggests that adults, regardless of training received, vary widely in the type and frequency of book-related talk, which can ultimately impact how much and what children learn. Further, Phillips and McNaughton (1990) found that adults rarely make explicit verbal references to print or print concepts during book reading sessions.

For the purposes of this review two specific early literacy strategies, dialogic reading and print referencing will be discussed. Both of these strategies have been shown in the research literature to have a demonstrated impact on children's literacy development, and thus are

considered evidence-based. The strategies of dialogic reading and print referencing as well as their impact on children's development will be discussed in more detail in the following sections.

***Dialogic Reading.*** Dialogic reading is a systematic approach to shared book reading in which the goal is to move the child from the role of passive listener to active participant in the story (Whitehurst, et al., 1988). Dialogic reading involves the use of specific prompts in order to elicit responses from children during a book reading. Specifically, the adult prompts the children with questions and then responds in such a way that the child is encouraged to share more (Doyle & Bramwell, 2006). The technique is utilized best during repeated readings of a storybook where the child is able to become the storyteller. The prompts utilized during book reading as defined by Whitehurst and colleagues (1994) align with the acronyms *CROWD* and *PEER* and are further specified as follows: (a) *completion* prompts, *recall* prompts, *open-ended* prompts, *wh-prompts* (what, where, and why questions), and *distancing* prompts by the adult for *CROWD* and, (b) the adult embedding the five types of questions through *prompting*, *evaluating*, *expanding*, and encouraging the child to *repeat* the expanded utterance for *PEER*.

Dialogic book reading interactions have been used in a variety of different studies as a deliberate means for increasing young children's language skills (Crain-Thoreson & Dale, 1999; Whitehurst et al., 1988, 1994). Whitehurst and colleagues (1988) found that compared with peers, who were read to in more conventional ways, young children read to with dialogic reading techniques were 6 to 8.5 months ahead on a standardized language measure. Furthermore, dialogic reading was more effective than a play-based language intervention model for improving language skills (i.e., mean length of utterance and vocabulary diversity) of young children with language delays (Dale, Crain-Thoreson, Notari-Syverson, & Cole, 1996). Utilizing

these dialogic reading techniques provides opportunities for increased discourse or verbal interactions between adults and children during book reading sessions.

***Print Referencing.*** Print referencing refers to the verbal and non-verbal cues that teachers can use during book reading, such as pointing to words that are being read or making comments about print, ultimately the goal being to draw children's attention to print (Justice & Ezell, 2004). Cues can be implicit or explicit and can be embedded with the storybook interaction (Lane & Wright, 2007). The three components that comprise print referencing as defined by Justice and Ezell (2004) include: (a) questions about print, (b) comments about print, and (c) tracking one's finger along print while reading. The premise behind print referencing is that when children attend to print during a book reading session, they will learn about print more quickly.

A central goal of print referencing is to engage emergent readers in conversations about print. Justice and colleagues (2008) found that children read to with a print referencing style fixate on print much more than children read to in way that does not draw attention to print. Similar positive effects for print referencing were found by Lovelace and Stewart (2007) who determined that five children with language impairment, participating in regular read-alouds, made significant growth in knowledge of print concepts over an intervention period which included the use of non-evocative print referencing strategies. Therefore, as with dialogic reading strategies, use of print referencing strategies provides increased opportunities for interactions between adults and children as well as increasing children's attention to and knowledge about print.

### **Delivery Considerations**

The second step in designing and implementing effective professional development activities, as noted earlier, relates to aspects to consider for the effective delivery of the professional development activities. One way of organizing the various considerations or decision that need to be made is to address for whom the development activity is being designed, what needs to be included, and how the content (or what) will be delivered. Buysse and colleagues (2009) suggest that the *who*, *what*, and *how* of professional development may be conceptualized as three intersecting components and viewed as the core of a professional development framework, the purpose of which is to promote effective teaching. The following sections will describe in more detail the *who*, *what*, and *how* of professional development again with a focus on application to early educators providing effective teaching of early literacy content.

**The who.** The emphasis here is on the practitioner and the notion that early educators vary widely in their backgrounds with qualifications, experience, race, culture, and serve children and families who themselves are very diverse (Buysse, et al., 2009). For example, it is not uncommon to find a mix of teacher characteristics in which some teachers have many years of preschool teaching experience but no college degree or early childhood certification or licensure, and others who are recent college graduates who have coursework in early childhood education but with little to no teaching experience (Brown, Molfese, & Molfese, 2008). The population of early childhood educators is fairly representative of the U.S. population in terms of race and ethnicity, but not nearly as diverse as the population of the children in the programs. While 44% of children were identified through parent report as either black or Latino, only 27% of teachers identified themselves the same (Clifford, Bryant, & Early, 2005).

Personal and professional characteristics of early educators may affect the manner in which professional development is received and may impact desired outcomes (Sheridan et al., 2009). Additionally, intrapersonal characteristics such as theoretical perspective, beliefs about children's learning, and view of self and role as teacher and change agent may moderate the effects of professional development efforts on professional practices (Dall'Alba & Sandberg, 2006; File, 1994). In their examination of 20 preschool teachers, Cunningham and colleagues (2009) found teachers lack the foundation knowledge required to promote early literacy and often tend to overestimate what they know. Further, another study found that teacher education and teacher experience are more important than teacher beliefs in influencing young children's literacy and mathematics learning in the preschool classroom (Brown, Molfese, & Molfese, 2008). When developing professional development initiatives, it is important to consider the diverse nature of the population of early childhood educators.

**The what.** The emphasis on the what, or the content, that will be provided outlines the knowledge, skills etc that will be the focus of the professional development program. The “what” should help both providers of the training and learners understand possible novel approaches to teaching and learning, the purpose behind a particular practice, and evidence to show the effectiveness of the practice (Buysse, et al, 2009). Demonstrating the effectiveness of the practices through research, providing specific knowledge and skills about these practices, and emphasizing the purpose behind these practices are all important strategies for supporting the learners' attainment of new content.

To determine the “what” of professional development for the purposes of this review, evidence-based practices within the content area of early literacy were identified. Specifically, the practices of dialogic reading and print referencing are the focus. Individually these practices

have been shown to be effective in terms of enhancing children's development. Bringing them together into a professional development program may provide teachers not only with new content, but also a new approach to teaching they have not been exposed to. Providing specific knowledge about the components of dialogic reading and print referencing as well as emphasizing the purpose of these strategies (i.e. as a means to enhance children's early literacy skill development) all support the outcome of improving child outcomes in the area of early literacy. In terms of learner objectives, the professional development program seeks to provide information to early educators about dialogic reading and print referencing such that the information is not only retained, but can be applied to current teaching practices.

**The how.** The how of professional development is defined as the approach, model, or method used to support teacher learning (Buysse, et al., 2009). Professional development for teachers has a long history of low quality, offering fragmented, disconnected, and often incoherent seminars (Ball & Cohen, 1999; Borko, 2004). In-service teachers often pursue outside learning opportunities through weekend workshops and/or college courses, and may even pick up informal advice at school through conversations with fellow staff and colleagues. Seminars or workshops, the most common form of inservice professional development, often fail to meet the needs of teachers in the following ways: teachers take the role of passive learner, content is vague and/or irrelevant and may be disconnected from the classroom context, and there is little opportunity for more active learning (Haymore-Sandholtz, 2002).

Specifically, Birman, Desimone, Porter, and Garet (2000) in a survey of 1000 nationally representative teachers, 79% reported participating in traditional professional development workshops in comparison with between 5 and 16% who reported opportunities for more active learning. Further, professional development in the form of workshops was rated as the least

preferred method for professional development, described as neither useful nor enjoyable (Garet, Porter, Andrew, & Desimone, 2001). Clearly, the means through which professional development is currently being provided (seminars and/or workshops) are not successful in helping teachers to not only learn the content but also to apply it directly to their practices. Therefore, newer more innovative approaches are needed.

The following elements of professional development have recently shown promise in the research literature: (a) professional development approaches that are content specific rather than general instruction, and (b) learning opportunities that include guidance and/or feedback on how to apply specific practices in the form of coaching or consultation (Hill, 2007; Whitehurst, 2002; Winton & McCollum, 2008). Providing in-service professional development is one way to address the variability that research has shown to exist in early childhood teacher's early literacy teaching. As suggested by Hsieh and colleagues (2009), many early childhood educators may receive their first in-depth training on early literacy skills through professional development. Therefore, inservice training becomes a critical factor in enhancing the quality of instruction delivered to young children. Inservice training can take many forms for example workshops, conferences, manuals, and video demonstrations as well as variety of other methods aimed at providing knowledge and information to participants. The key is to identify innovative training strategies that allow teachers access to information on specific evidence-based practices that address an identified problem or need (i.e., the what) that they can apply to their everyday teaching practices as they work with children (Snow et al., 1998). The challenge, however, comes with identifying training modalities that meet this criteria and are readily and easily accessible to teachers. Emerging technologies, such as technology enhanced platforms, present new options for in-service teachers to receive information.



***Technology-enhanced platform.*** Technology-enhanced platforms, defined as platforms that are accessible via computer and include hyperlinks and embedded videos, provide relevant and useful information as well as allow flexibility in accessing the information. Putnam and Borko (2000) suggested that computer technology such as multi-media presentations, as well as web-based materials, could serve as effective tools to facilitate teacher learning. Researchers further recognize the additional benefits of web-based education such as convenient access and flexible time and pace (Killion, 2000; Matthews, 1999). Web-based inservice training, while still a burgeoning area of research, has shown to be a promising tool for effective teacher professional development. For example, Ludlow (2002) found the use of web-based instruction to deliver staff development activities related to home visiting and assistive technology in early intervention and early childhood special education to be very successful, resulting in increased knowledge about these two topics. Further, Huai and colleagues (2006) found that a multi-media web-based course and book were effective in improving knowledge and self-efficacy about general and inclusive educational assessments. Continued research on the effectiveness of web-based professional development opportunities for teachers is needed to determine if in fact, it is an appropriate tool for enhancing teacher's learning and potentially improving their practice.

***Coaching.*** A second relatively new strategy for enhancing professional development for teachers is coaching. Current recommended guidelines for high-quality professional development programs is that they are sustained over time, grounded in practice, linked to curriculum and student outcomes, and collaborative and interactive (International Reading Association, 2003; National Staff Development Council, 2001). Coaching is one of the primary approaches recommended to achieve these features (Walpole & Meyer, 2008). Coaching can be thought of as a form of professional development that takes place in the teacher's classroom the goal of

which is to support teachers in acquiring, enhancing, or refining specific interventions or teacher behaviors (Pierce, Abraham, Rosenkoetter, Knapp-Philo, & Gail, 2008).

Research on the effectiveness of coaching has been varied. Ackland (1991), in a review of 29 studies of coaching, found that a variety of approaches to coaching helped teachers to employ new strategies in their classrooms, regardless of whether the coaching was provided by a peer or an expert. In a recent study by Rudd, Cain and Saxon (2008), it was found that caregivers of infants and toddlers could be trained through a 4 hour professional development experience to engage in more frequent and better types of interactions with toddlers. However, the study found considerable variability in the caregivers' levels of implementation of the process. With respect to coaching within the context of increased use of early literacy strategies by teachers, results have also been varied. Armstrong and colleagues (2008) found that teachers who were provided with a literacy coach as part of a training on the use of the *Heads Up! Reading* curriculum in their settings, showed only a slight advantage over those who did not receive the coaching. In another study employing coaching as a means to support teacher's use of specific early literacy strategies, Hsieh and colleagues (2009) found that coaching was in fact effective in promoting the use of strategies, with teachers using more of the strategies after coaching than during baseline.

### **Conclusion**

Early experiences in terms of early literacy development are critical for young children, particularly during the preschool years. Because preschool teachers have the potential to make a significant impact on children's early literacy development (Cunningham et. al., 2009), it is essential to provide support to teachers in the form of professional development opportunities that directly respond to problems in practice, promote evidence-based practices, and are

appropriate to who the teachers are, what they should know and be able to do, and is an appropriate and effective model of delivery for the content. Hence, studies of professional development programs are needed to understand the impact on preschool literacy environments of what is being taught, how it is delivered, and how it is implemented (Early et al., 2007).

Both web-based platforms and coaching as an approach to professional development have shown positive results in the literature. Within the context of early literacy training for teachers, interventions that utilize these two approaches together represent an area where more research is needed. Teacher's increased use of specific early literacy strategies, dialogic reading and print referencing within the context of book reading, and the resulting impact on children's engagement during the book reading session should be the goal of an intervention. This implies that the intervention must help teachers to not only learn the content of the intervention, but also apply the content with fidelity during the book reading sessions. In designing a professional development program there are multiple implications for the development of such programs as well as the research to evaluate the efficacy of such programs.

### **Implications for Practice**

Technology- enhanced platforms and coaching as a way to train teachers on specific knowledge and skills, and then assisting them in embedding those skills into their current practices has shown promise in the research literature (Ackland, 1991; Ludlow, 2002; Hsieh, et al., 2009; Huai et al., 2006). However, in order for these programs to reach maximum potential, they must fit within the context of teacher's current routines and provide them with information that is current, relevant, and evidence-based. In addition, the program is likely to be more effective if it is flexible and easily accessible for teachers, thereby not adding the additional stress of pre-arranged dates and times that teachers may not be able to adhere to. Therefore,

programs should be developed such that they enhance teacher's professional practices and potentially translate to improved student outcomes.

### **Implications for Research**

Beyond simply developing professional development opportunities that support teacher's use of early literacy strategies within the context of book reading and provide information on how to enhance quality of interactions between teachers and children, research is also needed to evaluate these programs. Research should address several issues. First, what is the impact of training on teacher knowledge about specific intervention content (i.e. dialogic reading and print referencing)? Second, what are the effects of participation in training on teacher frequency and fidelity of use of the intervention content (i.e. dialogic reading and print referencing)? Finally, what are the effects of participation in training on teacher quality of interactions with children during book reading sessions?

## References

- Abbott-Shim, M., Lambert, R. A., & McCarty, F. (2003). A comparison of school readiness outcomes for children randomly assigned to a Head Start program and the program's wait list. *Journal of Education for Students Placed at Risk*, 8(2), 191–214.
- Ackland, R. (1991). A review of the peer coaching literature. *Journal of Staff Development*, 12, 22–27.
- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Armstrong, K., Cusumano, D.L., Todd, M., & Cohen, R. (2008). Literacy training for early childhood providers: Changes in knowledge, beliefs, and instructional practices. *Journal of Early Childhood Teacher Education*, 29(4), 297-308. doi: 10.1080/10901020802470085
- Ball, D. L., & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practice- based theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 3–32). San Francisco: Jossey-Bass.
- Ball, E. W. (1997). Phonological awareness: Implications for whole language and emergent literacy programs. *Topics in Language Disorders*, 17(3), 14–26.
- Barnett, W. S. (2001). Preschool education for economically disadvantaged children: Effects on reading achievement and related outcomes. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 421–443). New York: Guilford Press.

- Barnett, W. S. (2003). Better teachers, better preschool: Student achievement linked to teacher qualifications. Retrieved on July 25, 2010, from <http://nieer.org/resources/policybriefs/2.pdf>
- Beauchat, K.A., Blamey, K.L., & Walpole, S. (2009). Building preschool children's language and literacy one storybook at a time. *The Reading Teacher*, 63(1), 26-39. doi: 10.1598/RT.63.1.3
- Birman, B. F., Desimone, L., Porter, A. C., & Garet, M. S. (2000). Designing professional development that works. *Educational Leadership*, 57(8), 1-8.
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3-15.
- Boudah, D. J., Logan, K. R., & Greenwood, C.R. (2001). The research to practice projects: Lessons learned about changing teacher practice. *Teacher Education and Special Education*, 24, 290-303. doi: 10.1177/088840640102400404
- Bowey, J. A., Tunmer, W. E., & Pratt, C. (1984). Development of children's understanding of the metalinguistic term word. *Journal of Educational Psychology*, 76, 500-512.
- Bowman, B.T., Donovan, M.S., & Burns, M.S. (2001). *Eager to learn*. Washington D.C.: National Academy of Science.
- Bredekamp, S., & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.
- Brown, E.T., Molfese, V.J., & Molfese, P. (2008). Preschool student learning in literacy and mathematics: Impact of teacher experience, qualifications, and beliefs on an at-risk

- sample. *Journal of Education for Students Placed At-Risk*, 13, 106-126. doi: 10.1080/10824660701860474
- Bruder, M.B., Mogro-Wilson, C., Stayton, V.D., & Dietrich, S.L. (2009). The national status of in-service professional development systems for early intervention and early childhood special education practitioners. *Infants & Young Children*, 22(1), 13-20.
- Burchinal, M. R., Cryer, D., Clifford, R., & Howes, C. (2002). Caregiver training and classroom quality in child-care centers. *Applied Developmental Science*, 6, 2-11.
- Burchinal, M. R., Peisner-Feinberg, E., Pianta, R. C., & Howes, C. (2002). Development of academic skills from preschool through second grade: Family and classroom predictors of developmental trajectories. *Journal of School Psychology*, 40, 415–436.
- Burns, M.S., & Stechuk, R.A. (2003). Establishing the basis for improved reading achievement. *The LSS Review*, 2(4), 6-7.
- Buyse, V., & Wesley, P. (2005). *Consultation in early childhood settings*. Baltimore: Brookes.
- Buyse, V., Wesley, P.W., Snyder, P., & Winton, P. (2006). Evidence-based practice: What does it really mean for the early childhood field? *Young Exceptional Children*, 9(4), 2-11. doi: 10.1177/109625060600900401
- Buyse, V., Winton, P.J., & Rous, B. (2009). Reaching consensus on a definition of professional development for the early childhood field. *Topics in Early Childhood Special Education*, 28(4), 235-243. doi: 10.1177/0271121408328173
- Clifford, R.M., Bryant, D., & Early, D.M. (2005). What we know about pre-kindergarten programs. *Principal*, 85(1), 20-24.

- Crain-Thoreson, C., & Dale, P. S. (1999). Enhancing linguistic performance: Parents and teachers as book reading partners for children with language delays. *Topics in Early Childhood Special Education, 19*, 28-39. doi: 10.1177/027112149901900103
- Crim, C., Hawkins, J., Thornton, J., Rosof, H.B., Copley, J., & Thomas, E. (2008). Early childhood educators' knowledge of early literacy development. *Issues in Teacher Education, 17(1)*, 17-30.
- Cunningham, A.E., Stanovich, K.E. (1998). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology, 33*, 934-945.
- Cunningham, A.E., Zibulsky, J., & Callahan, M.D. (2009). Starting small: Building preschool teacher knowledge that supports early literacy development. *Reading and Writing: And Interdisciplinary Journal, 22(4)*, 487-510. doi: 10.1007/s11145-009-9164-z
- Curby, T.W., Rimm-Kaufman, S.E., & Ponitz, C.C. (2009). Teacher-child interactions and children's achievement trajectories across kindergarten and first grade. *Journal of Educational Psychology, 101(4)*, 912-925. doi: 10.1037/a0016647
- Dale, P. S., Crain-Thoreson, C., Notari-Syverson, A. & Cole, K. (1996) Parent-child book reading as an intervention technique for young children with language delays. *Topics in Early Childhood Special Education, 16*, 213-235.
- Dall'Alba, G., & Sandberg, J. (2006). Unveiling professional development: A critical review of stage models. *Review of Educational Research, 76*, 383-412.
- Darling-Hammond, L., & McLaughlin, M. W. (1995). Policies that support professional development in an era of reform. *Phi Delta Kappan, 76*, 597-604.
- Dickinson, D. K., & Caswell, L. (2007). Building support for language and early literacy in preschool classrooms through in-service professional development: Effects of the



- Literacy Environment Enrichment Program (LEEP). *Early Childhood Research Quarterly*, 22, 243–260.
- Dickinson, D. K., & Smith, M.W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly*, 29, 104–122.
- Dickinson, D. K., & Tabors, P. O. (Eds.). (2001). *Beginning literacy with language: Young children learning at home and school*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Doyle, B.G., & Bramwell, W. (2006). Promoting emergent literacy and social-emotional learning through dialogic reading. *The Reading Teacher*, 59(6), 554-564.
- Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., Cai, K., Clifford, R.M., Ebanks, C., Griffin, J.A., Henry, G.T., Howes, C., Iriondo-Perez, J., Jeon, H-J., Mashburn, A.J., Peisner-Feinberg, E., Pianta, R.C., Vandergrift, N., & Zill, N. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, 78, 558–580.
- Echols, L. D., West, R. F., Stanovich, K. E., & Zehr, K. S. (1996). Using children's literacy activities to predict growth in verbal cognitive skills: A longitudinal investigation. *Journal of Educational Psychology*, 88, 296–304.
- Ezell, H.K., & Justice, L.M. (2000). Increasing the print focus of adult-child shared book reading through observational learning. *American Journal of Speech-Language Pathology*, 9(1), 36-47.
- File, N. (1994). Children's play, teacher-child interactions, and teacher beliefs in integrated early childhood programs. *Early Childhood Research Quarterly*, 9, 223–240.
- Francis, D. J., Shaywitz, S. E., Stuebing, K. K., Shaywitz, B. A., & Fletcher, J. M. (1996).

- Developmental lag versus deficit models of reading disability: A longitudinal, individual growth curves study. *Journal of Educational Psychology*, 88, 3-17.
- Galinsky, E., Howes, C., & Kontos, S. (1995). *The Family Child Care Training Study: Highlights of findings*. New York: Families and Work Institute.
- Garet, M., Porter, S., Andrew, C., & Desimone, L. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915–945.
- Gest, S. D., Holland-Coviello, R., Welsh, J. A., Eicher-Catt, D. L., & Gill, S. (2006). Language development subcontexts in Head Start classrooms: Distinctive patterns of teacher talk during free play, mealtime, and book reading. *Early Education and Development*, 17(2), 293–315.
- Girolametto, L., Weitzman, E., van Leishout, R., & Duff, D. (2000). Directiveness in teachers' language input to toddlers and preschoolers in day care. *Journal of Speech, Language, and Hearing Research*, 43(5), 1101–1114.
- Guskey, T. R. (2000). *Evaluating professional development*. Thousand Oaks, CA: Corwin Press.
- Guskey, T. R. (2001). Helping standards make the grade. *Educational Leadership*, 59, 20–27.
- Hagtvet, B. E. (2000). Prevention and prediction of reading problems. In N. A. Badian, N. A. (Ed.), *The Prediction and Prevention of Reading Failure*. Baltimore, MD: York Press, Inc.
- Hamre, B. K., Pianta, R. C., Mashburn, A., & Downer, J. (2007). *Building and validating a theoretical model of classroom effects in over 4,000 early childhood and elementary classrooms*. Retrieved July 25, 2010 from the Foundation for Child Development Web site: [http://www.fcd-us.org/resources/resources\\_show.htm?doc\\_id=507559](http://www.fcd-us.org/resources/resources_show.htm?doc_id=507559)

- Haymore-Sandholtz, J. (2002). Inservice training or professional development: Contrasting opportunities in a school/university partnership. *Teaching and Teacher Education*, 18(7), 815–830.
- Henk, J.K., Morrison, J.W, Thornburg, K.R., & Raya-Carlton, P. (2007). The efficacy of Heads-Up! Reading in Missouri on teacher's knowledge of emergent literacy: A satellite-based emergent literacy training course. *NHSA Dialog*, 10(1), 20-35. doi: 10.1080/15240750701301738
- Hill, H. C. (2007). Learning in the teaching workforce. *The Future of Children*, 17(1), 111–127.
- Hindman, A.H., Connor, C.M., Jewkes, A.M., & Morrison F.J. (2008). Untangling the effects of shared book reading: Multiple factors and their associations with preschool literacy outcomes. *Early Childhood Research Quarterly*, 23, 330-350. doi: 10.1016/j.ecresq.2008.06.002
- Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult-child ratio. *Merrill-Palmer Quarterly*, 43, 404–425.
- Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly*, 23, 27–50.
- Howes, C., Phillips, D., & Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based child care. *Child Development*, 63, 449–460.
- Hsieh, W-Y., Hemmeter, M.L., McCollum, J.A., & Ostrosky, M.M. (2009). Using coaching to increase preschool teacher's use of emergent literacy teaching strategies. *Early Childhood Research Quarterly*, 24, 229-247. doi:10.1016/j.ecresq.2009.03.007

- Huai, N., Braden, J.P., White, J.L., & Elliott, S.N. (2006). Effects of an internet-based professional development program on teacher's assessment literacy for all students. *Teacher Education and Special Education*, 29(4), 244-260.
- Huebner, C. E., & Meltzoff, A. N. (2005). Intervention to change parent-child reading style: A comparison of instructional methods. *Journal of Applied Developmental Psychology*, 26, 296–313. doi:10.1016/j.appdev.2005.02.006
- International Reading Association (2003). *Standards for reading professionals*. Retrieved August 26, 2010 from <http://www.reading.org/downloads/resources/545standards2003/index.html>
- Jackson, B., Larzelere, R., Clair, L. S., Corr, M., Fichter, C., & Egertson, H. (2006). The impact of HeadsUp! Reading on early childhood educators' literacy practices and preschool children's literacy skills. *Early Childhood Research Quarterly*, 21, 213–226.
- Justice, L. M., & Ezell, H. K. (1999). Knowledge of syntactic structures: A comparison of speech-language pathology graduate students to those in related disciplines. *Contemporary Issues in Communication Science and Disorders*, 26, 119–127.
- Justice, L. M., & Ezell, H. K. (2001). Written language awareness in preschool children from low-income households: A descriptive analysis. *Communication Disorders Quarterly*, 22, 123–134. doi: 10.1177/152574010102200302
- Justice, L. M., & Pullen, P. C. (2003). Promising interventions for promoting emergent literacy skills: Three evidence-based approaches. *Topics in Early Childhood Special Education*, 23(3), 99-113. doi: 10.1177/02711214030230030101

- Justice, L.M., & Ezell, H.K. (2004). Print referencing: An emergent literacy enhancement technique and its clinical applications. *Language, Speech, and Hearing Services in Schools, 35*, 185-193.
- Justice, L. M., Meier, J., & Walpole, S. (2005). Learning new words from storybooks: An efficacy study with at-risk kindergarteners. *Language, Speech, and Hearing Services in Schools, 36*, 17–32.
- Justice, L.M., Pullen, P.C., & Pence, K. (2008). Influence of verbal and non-verbal references to print on preschooler's visual attention to print during storybook reading. *Developmental Psychology, 44*(3), 855-866. doi: 10.1037/0012-1649.44.3.855
- Karweit, N., & Wasik, B. (1996). The effects of story reading programs on literacy and language development of disadvantaged preschoolers. *Journal of Education for Students Placed At-Risk, 4*, 319-348.
- Killion, J. (2000). Log on to learn. *Journal of Staff Development, 21*(3), 48-53.
- Koles, B., O'Connor, E., & McCartney, K. (2009). Teacher-child relationships in prekindergarten: The influences of child and teacher characteristics. *Journal of Early Childhood Teacher Education, 30*, 3-21.
- Kontos, S., Howes, C., & Galinsky, E. (1997). Does training make a difference to quality in family child care? *Early Childhood Research Quarterly, 43*, 351–372. doi: 10.1016/S0885-2006(96)90016-2
- Kontos, S., & Wilcox-Herzog, A. (1997). Teachers' interactions with children: Why are they so important? *Young Children, 52*(2), 4-12.

- Landry, S.H., Anthony, J.L., Swank, P.R., & Monseque-Bailey, P. (2009). Effectiveness of comprehensive professional development for teachers of at-risk preschoolers. *Journal of Educational Psychology, 101*(2), 448-465. doi: 10.1037/a0013842
- Landry, S. H., Swank, P. R., Smith, K. E., Assel, M. A., & Gunnewig, S. B. (2006). Enhancing early literacy skills for preschool children: Bringing a professional development model to scale. *Journal of Learning Disabilities, 39*, 306–324. . doi: 10.1177/00222194060390040501
- Lane, H.B., & Wright, T.L. (2007). Maximizing the effectiveness of read-alouds. *The Reading Teacher, 60*(7), 668-675.
- Lieberman, A. (1995). Practices that support teacher development. *Phi Delta Kappan, 76*, 591–596.
- Lonigan, C. J. (2004). Emergent literacy skills and family literacy. In B. Wasik (Ed.), *Handbook of family literacy* (pp. 57–82). Mahwah, NJ: Erlbaum.
- Lonigan, C. J., Burgess, S. R., Anthony, J. L., & Barker, T. A. (1998). Development of phonological sensitivity in 2- to 5-year old children. *Journal of Educational Psychology, 90*, 294–311.
- Lonigan, C. J., & Whitehurst, G. J. (1998). Relative efficacy of parent and teacher involvement in a shared reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly, 13*, 263-290. doi:10.1016/S0885-2006(99)80038-6
- Lovelace, S., & Stewart, S.R. (2007). Increasing print awareness in preschoolers with language impairment using non-evocative print referencing. *Language, Speech, and Hearing Services in Schools, 38*(1), 16-30.

- Ludlow, B.L. (2002). Web-based staff development for early intervention personnel. *Infants and Young Children, 14*(3), 54-64.
- Lynch, J. (2009). Preschool teachers' beliefs about children's print literacy development. *Early Years: An International Journal of Research and Development, 29*(2), 191-203.
- Lyon, G. R. (1998). Why learning to read is not natural. *Educational Leadership, 3*, 14-18.
- Mashburn, A., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., & Burchinal, M. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79*, 732-749. doi: 10.1111/j.1467-8624.2008.01154.x
- Matthews, D. (1999). The origins of distance education and its use in the United States. *T.H.E. Journal, 27*(2), 54-67.
- Mol, S.E., Bus, A.G., de Jong, M.T., & Smeets, D.J.H. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development, 19*(1), 7-26. doi: 10.1080/10409280701838603
- Morrow, L., & Gambrell, L. (2001). Literature-based instruction in the early years. In S. Neuman & D. Dickinson (Eds.) *Handbook of early literacy research* (pp. 348 – 360). New York: Guilford.
- Morrow, L.M., & Paratore, J. (1993). Family literacy: Perspectives and practices. *The Reading Teacher, 47*, 194-200.
- National Center for Education Statistics (1999). *Projections for education statistics to 2008*. U.S. Department of Education.
- National Early Literacy Panel (2008). *Developing early literacy*. Retrieved August 26, 2010, from <http://www.nifl.gov/publications/pdf/NELPReport09.pdf>

- National Reading Panel (2000). *Teaching children to read*. U.S. Department of Health and Human Services. Washington, D.C.
- National Research Council (2001). *Eager to learn: Educating our preschoolers*. Committee on Early Childhood Pedagogy. B. T. Bowman, M. S. Donovan, & M. S. Burns, (Eds.), Commission on Behavioral and Social Sciences and Education. Washington DC: National Academy Press.
- National Research Council Committee on Research in Education. (2005). *Advancing Scientific Research in Education*. Washington, D.C.: National Academy Press.
- National Staff Development Council. (2001). *NSDC standards for staff development*. Retrieved May 21, 2010, from <http://www.nsd.org/standards/>
- Neuman, S.B., Copple, C., & Bredekamp, S. (2000). *Learning to read and write: Developmentally appropriate practices for young children*. Washington, D.C.: NAEYC.
- Odom, S.L., Brantlinger, E., Gersten, R., Horner, R.H., Thompson, B., & Harris, K.R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children*, 71(2), 137-48.
- Paez, M.M., Patton, O.T., & Lopez, L.M. (2007). Dual language and literacy development of Spanish-speaking preschool children. *Journal of Applied Developmental Psychology*, 28, 85-102. doi:10.1016/j.appdev.2006.12.007
- Phillips, G., & McNaughton, S. (1990). The practice of storybook reading to preschool children in mainstream New Zealand families. *Reading Research Quarterly*, 25(3), 196–212.
- Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms and teachers: Do they predict



- observed classroom quality and child-teacher interactions? *Applied Developmental Science*, 9, 144–159.
- Pianta, R. C., Justice, J., Hamre, B., Downer, J., Burchinal, M., & Bryant, D. (2006). *National Center for Research on Early Childhood Education*. Washington, DC: Grant funded by the Institute for Education Sciences.
- Pianta, R.C., la Paro, K.M., Payne, C., Cox, M.J., & Bradley, R. (2002). The relation of kindergarten classroom environment to teacher, family, and school characteristics and child outcomes. *The Elementary School Journal*, 102(3), 225-238.
- Pierce, P., Abraham, L., Rosenkoetter, S. E., Knapp-Philo, J., & Gail, S. (2008). Literacy development. In P. J. Winton, J. A. McCollum, & C. Catlett (Eds.), *Practical approaches to early childhood professional development: Evidence, strategies, and resources* (pp. 187–206). Washington, DC: Zero to Three.
- Podhajski, B., & Nathan, J. (2005). Promoting early literacy through professional development for child care providers. *Early Education and Development*, 16(1), 161-181. doi: 10.1207/s15566935eed1601\_2
- Pullen, P.C., & Justice, L.M. (2003). Enhancing phonological awareness, print awareness, and oral language skills in preschool children. *Intervention in School and Clinic*, 39(2), 87-98. doi: 10.1177/10534512030390020401
- Putnam, R. T., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4-15.
- Ramey, S.L., & Ramey, C.T. (2008). Establishing a science of professional development for early education programs: The Knowledge Application Information Systems theory of

- professional development. In L.M. Justice & C. Vukelich (Eds), *Achieving excellence in preschool literacy instruction*, (pp. 41-63). New York: Guilford Press.
- Rudd, L.C., Cain, D.W., & Saxon, T.F. (2008). Does improving joint attention in low-quality child-care enhance language development? *Early Child Development and Care*, 178(3), 315-338. doi: 10.1080/03004430701536582
- Sheridan, S.M., Edwards, C.P., Marvin, C.A., & Knoche, L.L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education and Development*, 20(3), 377-401. doi: 10.1080/10409280802582795
- Sheridan, S. M., & Kratochwill, T. R. (2008). *Conjoint behavioral consultation: Promoting family-school connections and interventions*. New York: Springer
- Snow, C.E. (1991). The theoretical basis for relationships between language and literacy in development. *Journal of Research in Childhood Education*, 6, 5-10.
- Snow, C.E., Burns, M.S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, D.C.: National Academy Press.
- Stipek, D. J. (2004). Teaching practices in kindergarten and first grade: Different strokes for different folks. *Early Childhood Research Quarterly*, 19(4), 548–568.
- Sulzby, E. (1996). Roles of oral and written language as children approach conventional literacy. In C. Pontecorvo, M. Orsolini, B. Burge, & L. Resnick (Eds.), *Early text construction in children* (pp. 25-46). Hillsdale, NJ: Erlbaum.
- Tout, K., Zaslow, M., & Berry, D. (2006). Quality and qualifications: Links between professional development and quality in early care and education settings. In M. Zaslow & I. Martinez-Beck (Eds.), *Critical issues in early childhood professional development* (pp. 77–110). Baltimore: Brookes.

- Tunmer, W. E., Bowey, J. A., & Grieve, R. (1983). The development of young children's awareness of the word as a unit of spoken language. *Journal of Psycholinguistic Research*, 12, 567–594. doi: 10.1007/BF01067963
- Walpole, S., & Meyer, C. K. (2008). Models for coaching: Making them work for preschool. In L. M. Justice, & C. Vukelich (Eds.), *Achieving excellence in preschool literacy instruction* (pp. 69–101). New York: Guilford.
- Wasik, B., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, 93, 243–250.
- Wasik, B. A., Bond, M. A., & Hindman, A. H. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology*, 98(1), 63–74. doi: 10.1037/0022-0663.98.1.63
- Wells, G. (1985). *The Meaning Makers*. Portsmouth, NH: Heinemann.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York: Cambridge University Press.
- What Works Clearinghouse (2006). *Shared book reading*. Retrieved May 31, 2010 from [http://ies.ed.gov/ncee/wwc/reports/early\\_ed/share/](http://ies.ed.gov/ncee/wwc/reports/early_ed/share/).
- Whitebook, M., Gomby, D., Bellm, D., Sakai, L., & Kipnis, F. (2009). *Effective teacher preparation in early care and education: Toward a comprehensive research agenda. Part II of Preparing teachers of young children: The current state of knowledge, and a blueprint for the future*. Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California at Berkeley.
- Whitehurst, G. J. (2001). *Address to the White House Summit on Early Childhood Cognitive*

- Development*, Washington DC. Retrieved May 31, 2010 from [http://www2.ed.gov/news/pressreleases/2001/07/07262001\\_whitehurst.html](http://www2.ed.gov/news/pressreleases/2001/07/07262001_whitehurst.html)
- Whitehurst, G. J. (2002, March). *Research of teacher preparation and professional development*. Address to White House Conference on Preparing Tomorrow's Teachers. Retrieved May 29, 2010, from <http://www.ed.gov/admins/tchrqual/learn/preparingteachersconference/whitehurst.html>
- Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A.C., Crone, D. A., & Fischel, J. E. (1994). Outcomes of an emergent literacy intervention in Head Start. *Journal of Educational Psychology*, 86, 542-555.
- Whitehurst, G. J., Falco, F. L., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca, M. C., & Caulfield, M. (1988). Accelerating language development through picture book reading. *Developmental Psychology*, 24, 522 – 559.
- Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development*, 69, 848–872.
- Winton, P.J., Buysse, V., & Zimmerman, T. (2007, Spring). Evidence-based practice. *Early Developments*, 11(1). Retrieved from [http://www.fpg.unc.edu/assets/products/ed11\\_1.pdf](http://www.fpg.unc.edu/assets/products/ed11_1.pdf)
- Winton, P. J., & McCollum, J. A. (2008). Preparing and supporting high quality early childhood practitioners: Issues and evidence. In P. J. Winton, J. A. McCollum, & C. Catlett (Eds.), *Practical approaches to early childhood professional development: Evidence, strategies, and resources* (pp. 1–12). Washington, DC: Zero to Three.
- Zaslow, M., & Martinez-Beck, I. (Eds.). (2006). *Critical issues in early childhood professional development*. Baltimore: Brookes.

- Zevenbergen, A. A., & Whitehurst, G. J. (2003). *Dialogic reading: A shared picture book reading intervention for preschoolers*. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 177-200). Mahwah, NJ: Erlbaum.
- Zevenbergen, A. A., Whitehurst, G. J., Payne, A. C., Crone, D. A., Hiscott, M. D., Nania, O .C., & Fischel, J.E. (1997). Outcomes of an emergent literacy intervention in Head Start homes and classrooms. *National Head Start Association Research Quarterly*, 1, 137–147.
- Zucker, T.A., Ward, A.E., & Justice, L.M. (2009). Print referencing during read-alouds: A technique for increasing emergent reader's print knowledge. *The Reading Teacher*, 63(1), 62-72. doi:10.1598/RT.63.1.6

## Chapter 3

### Research Study: Effects of Training on Preschool Teacher's Use of Early Literacy Strategies

#### During Book Reading

##### Abstract

This study investigated the impact of professional development (i.e. components of dialogic reading, print referencing, and quality of interactions) on the instructional behaviors of teachers of children between the ages of 3 and 5 during book reading sessions. Using a single-subject multiple baseline design, behaviors of teachers were examined to determine if teachers can learn and implement with high levels of fidelity new content (i.e. strategies of dialogic reading, print referencing, and quality of interactions) during book reading sessions.

Additionally, child behaviors were examined to determine whether teacher's use of these strategies resulted in changes in level and complexity of engagement. Findings indicated that teachers were effective in learning and applying new content. Their use of dialogic reading, print referencing, and quality of interactions strategies increased after the intervention training. No significant differences on children's level and complexity of engagement as a result of the intervention were observed. Implications for practice and research are discussed.

## Chapter 3

### Effects of Training on Preschool Teacher's Use of Early Literacy Strategies

#### During Book Reading

The skills and abilities young children develop in the early learning years provide the foundation for later academic achievement and success (Koles, O'Connor, & McCartney, 2009). The role of the early childhood educator in ensuring that children are supported in the early learning years cannot be underestimated. Research has shown that specific teacher characteristics are important in positively impacting children's development, namely: (a) educational background (Barnett, 2003; Bowman, Donovan, & Burns, 2001; Pianta, et al., 2005), (b) relationships with children (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre, Pianta, Mashburn, & Downer, 2007), and (c) interactions with children (Howes et al., 2008; Kontos & Wilcox-Herzog, 1997; Mashburn et al., 2008). Given the association between early childhood educators' characteristics and children's development, the critical role of professional development emerges as a means to facilitate continued development of teacher's knowledge, skills, and abilities.

One way in which the goal of enhanced development for all children can be targeted is to examine whether professional development for teachers results in teachers providing quality learning experiences that support and foster children's early development. When children are supported by teachers and caregivers who utilize specialized techniques that are sensitive to emerging developmental skills, they often perform at a higher level (Howes, 1997). Current research, however, has suggested mixed outcomes. Some studies report that professional development can be helpful in improving program quality (e.g., Galinsky, Howes, & Kontos, 1995), but others argue that, in general, studies have not conclusively demonstrated benefits in

terms of positive child outcomes (e.g., Ramey & Ramey, 2008). In addition, the scope, content, and delivery of professional development have varied broadly with limited research assessing the relative effectiveness of different approaches (Whitebook, Gomby, Bellm, Sakai, & Kipnis, 2009). Dickinson and Caswell (2007) provided professional development through a credit bearing course which resulted in enhanced classroom practices related to literacy and language. Another approach that was found to have some impact on teacher's practices, and subsequently children's skills, used a combination of satellite delivery of content with site-based coursework (Jordanson et al., 2006). Stronger evidence of effectiveness, however, has come from professional development interventions that utilize some form of coaching (Wasik & Bond, 2001; Wasik, Bond, & Hindman, 2006). Therefore, there is a continued need for a better understanding of the features of effective professional development for early childhood educators.

As suggested by Hsieh and colleagues (2009), many early childhood educators may receive their first in-depth training on early literacy skills through professional development. Therefore, inservice training becomes a critical factor in enhancing the quality of instruction delivered to young children. Inservice training can take many forms (e.g., workshops, conferences, manuals, and video demonstrations) as well as variety of other methods aimed at providing knowledge and information to participants. The key is to identify innovative training strategies that allow teachers access to information on specific evidence-based practices that address an identified problem or need they can apply to their everyday teaching practices (Snow, Burns, and Griffin, 1998).

Emerging technologies, such as technology enhanced platforms, present new options for inservice teachers to receive information. Technology enhanced platforms, defined as platforms



that are accessible via computer and include hyperlinks and embedded videos, provide relevant and useful information as well as allow flexibility in accessing the information. Putnam and Borko (2000) suggested that computer technology such as multi-media presentations as well as web-based materials could serve as effective tools to facilitate teacher learning. Researchers further recognize the additional benefits of web-based education such as convenient access and flexible time and pace (Killion, 2000; Matthews, 1999). Web-based inservice training, while still a burgeoning area of research, has been shown to be a promising tool for effective teacher professional development. For example, Ludlow (2002) found the use of web-based instruction in delivering staff development activities related to home visiting and assistive technology in early intervention and early childhood special education to be very successful, resulting in increased knowledge about these two topics. Further, Huai and colleagues (2006) found that a multi-media web-based course and book were effective in improving knowledge and self-efficacy about general and inclusive educational assessments.

Given that current recommended guidelines for high-quality professional development indicate that professional development should be sustained over time, grounded in practice, collaborative, and interactive, (National Staff Development Council, 2001), simply providing the content to teachers may not be enough. Coaching is one of the primary approaches recommended to achieve these features (Walpole & Meyer, 2008). Coaching can take place in the teacher's classroom and the goal is to support teachers in acquiring, enhancing, or refining specific interventions or teacher behaviors (Pierce, Abraham, Rosenkoetter, Knapp-Philo, & Gail, 2008).

Research on the effectiveness of coaching has been varied. Ackland (1991), in a review of 29 studies of coaching, found that a variety of approaches to coaching helped teachers to employ new strategies in their classrooms, regardless of whether the coaching was provided by a

peer or an expert. In a recent study by Rudd, Cain and Saxon (2008), it was found that caregivers of infants and toddlers could be trained through a 4 hour professional development experience to engage in more frequent and better types of interactions with toddlers. However, the study found considerable variability in the caregivers' levels of implementation of the process. The use of coaching within the context of increased use of early literacy strategies by teachers has been studied and the results have also been mixed. Armstrong and colleagues (2008) found that teachers who were provided with a literacy coach as part of a training on the use of the *Heads Up! Reading* curriculum in their settings, showed only a slight advantage over those who did not receive the coaching. In a another study employing coaching as a means to support teacher's use of specific early literacy strategies, Hsieh and colleagues (2009) found that coaching was in fact effective in promoting the use of intervention strategies, with teachers using more of the strategies after coaching than during baseline.

Given the multiple content areas in which professional development can be targeted, early literacy has emerged as a particularly critical area, especially in enhancing children's later reading achievement. Children entering kindergarten who have emergent competence in early literacy skills (e.g. letter knowledge, print awareness) demonstrate higher levels of reading achievement in their early elementary years than children who lack these skills (National Reading Panel, 2000). Early experiences that support later school success, particularly within the context of reading achievement, can also be those experiences that promote early literacy development in young children. Activities such as listening to stories (Wells, 1985), thinking about stories heard (Karweit & Wasik, 1996), and being exposed to unfamiliar vocabulary (Snow, 1991) have been shown to be critical in supporting the acquisition of early literacy skills.

Therefore, the need to support these activities within early educational experiences becomes paramount to later school success (Snow et al., 1998).

A variety of practices have been identified in the literature as having positive impacts on children's early literacy development. For example, interactive storybook reading and direct teaching of phonemic and print awareness skills are all strategies that can be couched within the context of children's literature (Allor & McCathren, 2003). For the purposes of this study, two specific strategies, dialogic reading and print referencing are the focus.

One early literacy strategy demonstrated in the research literature to be an evidence-based practice that teachers can incorporate into their book reading sessions is dialogic reading (Justice & Pullen, 2003). Dialogic reading is an early childhood practice based on the theory that carefully scaffolded adult/child interactions in the context of storybook reading support young children's language development (Zevenbergen & Whitehurst, 2003). Dialogic reading is characterized as active engagement by the child through techniques utilized by an adult when reading, in which the child becomes the storyteller. The techniques utilized during book reading as defined by Whitehurst and colleagues (1994) align with the acronyms *CROWD* and *PEER*. *CROWD* is specified as follows: (a) *completion* prompts, *recall* prompts, *open-ended* prompts, *wh-prompts* (what, where, and why questions), and *distancing* prompts by the adult and *PEER* is specified as: (b) the adult embedding the five types of questions through *prompting*, *evaluating*, *expanding*, and encouraging the child to *repeat* the expanded utterance.

A second early literacy strategy shown to be an effective evidence-based practice that teachers can incorporate into book reading sessions is print referencing (Lane & Wright, 2007; Zucker, Ward, & Justice, 2009). Print referencing refers to a teacher's use of verbal and nonverbal techniques to heighten children's attention to, and interest in, print within a storybook

(Justice, Kaderavek, Fan, Sofka, & Hunt, 2009). The three components that comprise print referencing as defined by Justice and Ezell (2004) include: (a) questions about print, (b) comments about print, and (c) tracking one's finger along print while reading. The premise of print referencing is that when children attend to print during a book reading session, they will learn about print more quickly.

Dialogic reading and print referencing can be implemented within the context of shared book reading, either to a child or a group of children. Shared book reading between adults and children has long been considered a valuable educational practice, aimed at enhancing the language and literacy development of young children, excitement about and appreciation for books, and is considered to be an enjoyable activity. Typically a shared book reading session consists of an adult reading a book to a group of children in which the adult may or may not engage the children in a discussion about the book or other related ideas (Hindman, Connor, Jewkes, & Morrison 2008; What Works Clearinghouse, 2006). Children become interested in books and their content if the adult and child interact within a social context (Mol, Bus, de Jong, & Smeets, 2008). Further, book reading may be most effective when adult readers seek to actively involve the child in verbal exchanges during shared book reading (Huebner & Meltzoff, 2005).

Book reading between teachers and children can reach maximum potential in levels of learning for children when they have opportunities to actively participate and respond (Morrow & Gambrow, 2001). To reach the goal of maximum learning potential, teachers must provide supports, specifically dialogic reading and print referencing for the purposes of this study, to children during book reading sessions consistently and with fidelity. However, this is not always the case. In their extensive research, Dickinson and Tabors (2001) found that many of the

preschool teachers they observed lacked the skillful intentional instruction methods found to be most beneficial to children. Specifically, research suggests that adults, regardless of training received, vary widely in the type and frequency of book-related talk, which can ultimately impact how much and what children learn (Dickinson & Tabors, 2001; Lonigan & Whitehurst, 1998). Further, Phillips and McNaughton (1990) found that adults rarely make explicit verbal references to print or print concepts during book reading sessions.

While implementing early literacy strategies within the context of book reading sessions can impact children's literacy development, it is also important to consider the quality of interactions between adults and children during the sessions. Pianta and colleagues (2002) found that classrooms given a high score in emotional child-centered dimensions, for example emotional climate of the classroom, were those in which teachers demonstrated a positive, supportive emotional tone to their interactions and discouraged negativity among peers and between adults and children. Furthermore, these classrooms were considered to be warm and supportive to the children and were consistent with guidelines and standards of developmentally appropriate practice for young children (Bredekamp & Copple, 1997). Finally, recent research has indicated that teacher interactions with children may be the best indicator of children's emergent literacy learning (Mashburn, et al., 2008). Therefore, implementation of the early literacy strategies of dialogic reading and print referencing as well as the quality of the interactions between children and adults can potentially influence children's learning in both the short and long term.

Research has shown that dialogic reading (Arnold & Whitehurst, 1994; Dale, Crain-Thoreson, Notari-Syverson, & Cole, 1996; Lonigan & Whitehurst, 1998; Valdez-Menchaca & Whitehurst 1992), and print referencing strategies (Ezell & Justice, 2000; Justice & Ezell, 2004;

& Justice et al., 2009) have a demonstrated effectiveness on young children's development, especially in the areas of language and literacy. However, limited research is currently available that investigates the relationship between teachers' use of dialogic reading and print awareness strategies combined with enhanced quality of interactions, and children's engagement during book reading sessions. Child engagement is defined as the amount of time children spend interacting with the environment (with adults, peers, or materials) in a developmentally and contextually appropriate manner (McWilliam & Bailey, 1995; Ridley, McWilliam, & Oates, 2000). It is thought that when children are engaged, their participation in developmentally appropriate activities will increase (Ridley & McWilliam, 2001).

Engagement is considered to be critical for learning (McWilliam & Bailey, 1992) and has been discussed as a variable that indirectly connects environments (including classroom contexts and teacher behaviors), and achievement (Greenwood, Carta, & Dawson, 2000). Further, child engagement has been recognized as one of the goals of early intervention (Bailey & Wolery, 1992). One study by Gianvecchio and French (2002) found that preschool teacher's use of talk related to a story during whole group book reading times was associated with increases in the attention (i.e. eye gaze) of children, even for children who were previously inattentive. Indeed, the amount of time a child spends engaged during an instructional activity has an impact on overall learning and skill development. It would follow, then, that the more time spent engaged during an instructional activity, the more actively the child will participate and ultimately, the more they will learn. Child engagement was chosen as the most appropriate child measure for this study given the short time frame over which the study occurred as well as allowing for a more measureable change to take place.

In sum, the following is known. Early childhood educators have the potential to influence children's development. Effective professional development opportunities for early educators, specifically inservice trainings, are critical to supporting children as they develop. Two important steps for designing effective professional development activities have been recommended: the what and the how. One content area or "what", early literacy, is particularly important for children's later reading achievement. Yet evidence indicates that early educators do not have sufficient knowledge of nor do they routinely implement effective early literacy practices. Dialogic reading and print referencing delivered within the context of shared book reading are two practices in early literacy instruction that have been shown to have a strong evidence base. Thus, as suggested in the professional development literature on determining the "what", developers should identify a problem in practice (i.e., limited knowledge of early literacy practices) and then design training to promote the implementation of evidenced based practices that address the problem (i.e., dialogic reading and print referencing). In making determination of how to best deliver the content, the what, of professional development a number of approaches with mixed results have been reported in the literature. Innovative training approaches, or the how of professional development, such as technology enhanced platforms combined with coaching, a recommended approach that allows teachers to practice and refine teaching strategies within their classroom setting, may have a higher probability of positively impacting early educators practices than other more traditional approaches.

This study investigated the impact of professional development (i.e. components of dialogic reading, print referencing, and quality of interactions) on the instructional behaviors of teachers of children between the ages of 3 and 5 during book reading sessions in community child care settings. Three research questions are posed to assess the impact of training on

teachers: (1) What are the effects of participation in training on teacher's level of knowledge about the intervention content? (2) What are the effects of participation in training on the teacher's rate per minute of use and fidelity of use of the intervention content? and (3) What are the effects of participation in training on teacher's quality of interactions with children during book reading sessions? A secondary question is posed to determine the impact of teacher training on children's engagement during book reading sessions: Specifically, what are the effects of teacher's increased use of strategies on children's level and complexity of engagement?

## **Method**

The method section describes: (a) participants involved in the current study, (b) setting in which the study takes place, (c) experimental design and procedures utilized, and (d) measurement employed.

### **Participants**

The following sections detail: (a) participant recruitment, (b) participant demographics, and (c) the role of the researcher.

**Participant recruitment.** Three levels of recruitment across programs, teachers, and children were necessary for this study. The following sections detail recruitment efforts across each level beginning with the program, followed by the teacher, and ending with the child.

The decision to invite a program to participate was guided by the following program criteria: (a) the extent to which the program supported the researcher's goals: to study community programs who employ teachers of children between the ages of 3 and 5, (b) the program operating such that children attend five days out of the week, between the hours of approximately 7:30 – 5:00, and (c) are appropriately licensed as a child care or preschool program by the appropriate state agency. Potential sites were drawn from across those available



within the community regardless of type, size, or curriculum approach and philosophy. However, early childhood programs operating under the public school system in the community were excluded because the primary researcher was an employee of the school district for the duration of the study.

After obtaining a list of the licensed programs in the area from the Kansas Association of Child Care Resource and Referral Agencies (KACCRRRA) website and identifying programs that appeared to meet the program inclusion criteria, the researcher individually contacted the directors. In speaking with the program directors the researcher confirmed whether the program met the program inclusion criteria noted above, and sought permission to deliver consent forms to the program to be made available to classroom teachers of children between the ages of 3 and 5. The researcher also explained to the program director the expectations for teachers and the inclusion criteria for teacher participation. The researcher was available to present a brief explanation of the study as needed. Further, the researcher was available to provide additional information and clarification for any director or teacher who requested such information. As an incentive for programs to consider participation by their teachers, the director could offer all employees of a participating program the option to receive the training content via a whole group training session delivered by the researcher at the conclusion of the study.

Upon receipt of the signed and completed consent forms from the individual teachers, the researcher contacted the teachers to arrange times to meet and confirm that they met the following teacher inclusion criteria: (a) teach in a classroom with children between the ages of 3 and 5, (b) are actively employed full-time at the time of the study and anticipate continued employment for a minimum of the next 6 months, and (c) include book reading sessions as part of their daily routine, and engage in this activity a minimum of twice during the day.

Furthermore, only lead teachers, defined as those teachers who provide the primary instruction to children, were considered. No specific requirements for licensing/certification, educational background, and/or years of experience were established beyond those that would be in place for the program to meet licensing standards. The rationale for not establishing specific teacher training and experience criteria was to allow for the inclusion of as many participants in order to provide sufficient opportunities for the researcher to access book reading opportunities within preschool classrooms, as well as to reflect authentic community preschool education delivery settings.

The teachers who were interested in and eligible to participate in the study were asked to provide more detailed information through an informal interview with the researcher and observation of the teacher reading a storybook to their children. Information sought during the interview included any prior training and/or professional development on book reading strategies and perceptions about professional development opportunities. Information sought during the observation included directly observing the teacher as she read a storybook to a group of children to determine strategies/techniques used, as well as information regarding general classroom environment. This information was then used to determine if teachers were in fact a good fit for participation in the study.

In addition to gathering background information from the teacher, each teacher was also asked to identify two children from their classrooms to serve as targets for observation. Two children were targeted to maximize the number of observational opportunities (i.e. at least one child present on the day of the videotaping). The purpose of the child observation was to assess the impact of the teacher's implementation of specific early literacy strategies on the child's level and complexity of engagement during the reading of the storybook. Criteria for selection of

children to participate in the study included: (a) record of good attendance, (b) considered by the teacher to be representative of the children across the class in terms of behaviors during book reading sessions, and (c) expected to remain with the same lead teacher throughout the duration of the study. To gain parent permission for each of the targeted children the researcher provided the teacher with a parent consent form, requested that the teacher discuss the study with the parent, and had the parent sign the form if they agreed. The researcher was available to the parents to answer questions or address concerns. Further, parents were kept apprised of progress throughout the duration of the study through notes that were delivered to teachers who then provided the notes to the parents.

**Participant demographics.** Three teachers as well as six children (two per teacher) were selected to participate in this study. Tables 1, 2, and 3 provide more specific information related to the program, teacher, and child respectively. The first two teachers, Andrea and Maggie, were both recruited from the same privately owned and operated community child-care program, referenced in Table 1 under the pseudonym of Center A. Center A has been in operation for 6 years with another location in the same state opening 1 year ago. The program is state licensed and follows those guidelines for teacher to child ratio. Children between the ages of 6 weeks to 12 years attend this program. Andrea is a 38-year-old Caucasian female who has been teaching for 11 years. Andrea has an associate's degree in business management and is currently taking online courses towards a bachelor's degree in psychology with an emphasis in special education. She has participated in literacy trainings in the past few years that were offered through various agencies as a part of professional development activities. Maggie is a 40-year-old Caucasian female who has been working in child-care for 17 years, the last 5 at the

center where the study took place. Maggie has a high school diploma and has participated in the same literacy trainings as Andrea.

The third teacher, Molly, was recruited from Center B, another privately owned community child care program. Center B has been in operation since 1969 and is open year round. Children who attend this program range in age from 2 weeks to 12 years. Molly is a 24-year-old Caucasian female who has been teaching at Center B for 2 years. Molly has a Bachelor's degree in Elementary Education with an emphasis in language arts. Molly has participated in a training related to positive behavior support for young children, some of which was literacy related, that was offered through Center B.

Six children were recruited to participate in the study, two children from each teacher's classroom. The two children from Andrea's classroom, Tommy and Cooper, have been with Andrea for an entire calendar year. Tommy is a typically developing 5-year-old Caucasian male from a low income family. He was chosen to participate in the study because of his high energy level and willingness to participate during book reading sessions. Cooper is a 5-year-old Caucasian male from a low income family. Cooper currently has an individualized education plan (IEP) in place to address speech and articulation concerns. Andrea has reported that other concerns have recently come up with regards to Cooper's development and it is anticipated that additional services will be added to Cooper's IEP when he enters Kindergarten. The two children from Maggie's classroom, Jordan and Leslie, have been with Maggie for an entire calendar year. Jordan is a typically developing 5-year-old Caucasian male from a middle income family. Leslie is a typically developing 5-year-old female from a middle income family. The final two children from Molly's class, Annie and Denise, have only been with Molly for about 2 months. Annie is a

typically developing four-year-old Caucasian female from a middle income family. Denise is also a typically developing four-year-old Caucasian female from a middle income family.

**Role of researcher.** During the study, the researcher communicated directly with teachers with respect to participation and scheduling. The researcher also provided all aspects of the training during the intervention condition. The researcher was available to the teachers after the intervention content had been delivered, via a flash drive, to troubleshoot technology issues or concerns. Further, the researcher communicated directly with the teachers via email regarding observed behaviors during the videotaping to provide the coaching portion of the intervention. A second individual was trained to assist with the videotaping only. The researcher scheduled and then communicated the schedule for videotaping with this individual throughout the duration of the study. When the researcher and assistant were videotaping the book reading sessions all interactions, particularly those directed towards the researcher by the children, were ignored.

## **Setting**

The study took place in the classrooms of the teachers participating in the study. The content of the intervention was delivered via a flash drive with instructions attached for how to access the information. The researcher was available as a resource while the teachers were independently reviewing the content. While it was suggested that the teachers review the content at their workplace, two of the teachers (i.e. Maggie and Molly) elected to take it home.

Videotaped probes of book reading sessions occurred throughout the duration of the study and were scheduled with the teachers such that each teacher was videotaped between 2-4 times over the course of 5 days. The days were not necessarily consecutive “school days” and the researcher was flexible to accommodate special events, unexpected disruptions of routines (e.g., fire drills, teacher sick day, or vacation), and holidays. Upon completion of a videotaping

session, the next was scheduled with each teacher at that time. The researcher remained in constant contact with the teachers in the event of a conflict and necessary rescheduling. The researcher contacted the teacher the day before each videotaping to confirm. The teachers were able to maintain a consistent schedule throughout the study with Maggie and Andrea taping 2-3 times per week and Molly taping 3-4 times per week.

The coaching aspect of the intervention was delivered via email communication as well as direct face-to-face conversations with the teachers upon the conclusion of each book reading session. Each email was individualized according to the needs of the specific teacher, providing information specific to the intervention content they had delivered during a particular book reading session. The emails were generated either the day of the book reading session, or as soon as possible before the next videotaped session was scheduled to occur, and were meant to be a conversation between the teachers and researcher regarding their performance during the book reading session. Exchanges between the teachers and researcher varied across teachers with Molly communicating more frequently via email and face-to-face communication as compared to Andrea and Maggie who communicated more frequently during face-to-face interactions.

Children targeted for observation during the book reading sessions were included in the same videotaped probes as the teachers and data was collected on both children in each classroom, if possible, or on only one in the event of an absence. If both children were absent on the day of the videotaping, alternative arrangements were made so the videotaping could occur as soon as possible after the absences.

### **Experimental Design and Procedures**

The effects of teacher's participation in training regarding early literacy strategies that can be incorporated during book reading was evaluated using a multiple baseline (i.e. probes)

across participants design. Following are the specific behaviors that were evaluated: (a) teachers rate per minute of use of the strategies, (b) the fidelity of use of the strategies by teachers, defined as the implementation of all the required components, (c) the quality of teacher's interactions with children, and (d) children's level and complexity of engagement. Experimental conditions included baseline, intervention (i.e. training of strategies) to be implemented by teachers with children, and follow-up when possible.

Two objectives for the teacher training component were established for this study: (a) teachers are able to learn and recall specific intervention content and (b) teachers are able to apply the intervention content with fidelity. The attainment of the objective of recall of specific content was assessed through a pre and post test completed prior to and immediately following viewing the multi-media instructional presentation. The attainment of the objective of application was primarily assessed through coding of the teachers behaviors during the actual book reading sessions. Two more secondary potential effects of change in teachers' behavior were identified and assessed through coding of the videotapes. Specifically, change in teachers' quality of interaction with the children as a result of teacher behavior change was assessed, as were changes in the level and complexity of the children's engagement.

### **Baseline condition**

Each of the three participating teachers began the study at baseline. The researcher and assistant equally divided the videotaping during the baseline period so as to best accommodate overlapping book reading sessions across teachers. The researcher or assistant came to the classroom of each teacher and videotaped book reading sessions, asking teachers to conduct them in a "business as usual" format that is, without any type of intervention or input from the researcher. The researcher and assistant's role during baseline was to operate the video

equipment in a manner that was as least as intrusive as possible. Any information provided to the teachers did not include information on strategies that were to be introduced during the intervention phases. At the same time that teachers were videotaped, the two identified target children were also videotaped to determine the level and complexity of engagement during the book reading session. It is assumed that during baseline, the children's behavior was typical of that displayed on any given day during story time.

### **Intervention condition**

The intervention condition of the study consists of the following components: (a) a technology enhanced platform for delivery of the intervention content, and (b) coaching during implementation of the content. Coaching was not provided until after the content had been viewed in full. Once the first participant, Andrea, reached a stable baseline, she moved into intervention (i.e., intervention content followed by content plus coaching) while the others continued in baseline. The next participant, Maggie, entered into intervention once the first participant, Andrea, attained a positive change in both level and trend, and then similarly Molly entered intervention. When a teacher moved into intervention, the researcher took over videotaping of that teacher to provide immediate feedback and address concerns, while the assistant continued videotaping teachers in baseline. As the second and third teacher moved into intervention, the researcher became the primary video recorder as scheduling would allow. Decisions regarding which teachers would be videotaped by the researcher were made on a daily basis and were dependent upon where support was most needed.

**Intervention content.** Following is a definition of the package of intervention strategies combining components of dialogic reading, print referencing, and quality of interactions that were provided to teachers. Specifically those components are: (a) *completion* prompts, *recall*



prompts, *open-ended* prompts, *wh-prompts* (who, when, what, where, and why questions), and *distancing* prompts by the adult to represent dialogic reading strategies, and (b) questions about print, comments about print, and tracking finger along print while reading to represent print referencing strategies. The print referencing strategies cited here are those originally developed by Justice and Ezell (2004) and include all components of the practice. However, the dialogic reading strategies mentioned here are taken from Whitehurst and colleagues (1994) and have been simplified. In addition, tips and strategies for increasing the quality of interactions between teachers and children, adapted from the Indicator of Parent-Child Interaction (IPCI), an individual growth and development indicator (Baggett, Carta, & Horn, 2006), were provided. Teacher behaviors with respect to teacher facilitators (i.e. acceptance/warmth, uses descriptive language, follows child's lead, introduces/extends, and responds to distress) and teacher interruptions (i.e. criticism/harsh voice, restrictions/intrusions, and rejects child's bid) were described.

**Technology enhanced platform.** Content for the platform was drawn from research literature as well as consultation with knowledgeable individuals regarding adequacy of the content. The content was initially presented at a national conference and suggestions and feedback from those in attendance was incorporated into the design and content of the session. Field-testing on the usability of the session as well as adequacy of the content was completed prior to the study with 5 testers from a range of experiences and backgrounds, including two preschool teachers, one doctoral student, one former preschool teacher, and a novice to the field of early childhood practices. The testers were asked to view the session slide by slide and provide written and verbal feedback regarding ease of navigation through the session, issues with technology (i.e. videos and/or hyperlinks), presentation of the information, grammar and

spelling, and sense of appropriateness of the content. Feedback provided by all testers was then incorporated into the session and content modified to address areas of concern or difficulty.

The final content of the session included information about early literacy skill development, storybook reading, evidence-based early literacy intervention practices (specifically dialogic reading and print referencing), quality of interactions, and the importance of book selection. Teachers were also provided with examples of how to use the practices and then were able to practice through hands-on application. It was anticipated that upon completion of the session the participants would have answers to the following questions: (a) what are the potential negative implications for children not acquiring early literacy skills and furthermore what are the positive impacts of children acquiring early literacy skills (b) how can book reading be used to support the development of early literacy skills, (c) what do we mean by the term evidence-based practices and why is it important for early educations, (d) what are the strategies of dialogic reading and print referencing and how can they be used within the context of book reading, (e) why are quality interactions with children important and what do they look like, and (f) what considerations should be made when selecting a books to read to young children. Table 4 provides a summary of the content provided to teachers.

The content was delivered via Soft Chalk Lesson Builder that included general information regarding the impact of high-quality book reading sessions on young children as well as more specific information on the strategies and techniques of dialogic reading, print referencing, and quality of interactions. Embedded within the session were streamed videos that allowed participants to see the strategies as they were modeled, as well as other interactive media such as hyperlinks, text annotations, and quiz items and activities. Teachers were provided with all of the necessary information related to dialogic reading, print referencing, were walked

through a sample where the strategies were applied directly to a storybook, and then were asked to independently apply the strategies to a different storybook. See Appendix A for an example of a slide from the training session. The session took between 45-60 minutes to complete and once completed, videotaping probes followed the same procedures as previously outlined for both teachers and children.

**Coaching.** In addition to the technology enhanced platform for delivery of the intervention content, coaching was provided on an individualized basis to each of the teachers. The coaching was meant to supplement the information presented in the training session by providing specific feedback related to teacher's implementation of the dialogic reading and print referencing strategies, as well as on the quality of interactions between the teachers and children. Coaching was provided to the teachers on the next scheduled book reading session after completion of the intervention session. Initially, very specific feedback was provided to the teachers in terms of how many strategies were used and how often they were used, as well as the interaction quality between the teacher and children. Suggestions for improvement were provided across each of these areas as needed. It was anticipated that as the study progressed, the teachers would no longer require the suggestions for improvement, and would only need to know that they were implementing with 100% fidelity, at a rate per minute above that observed during baseline, and with high quality of interactions. At this time, the intervention would be faded. Below is an example email that was shared with a teacher during the initial stages of intervention content plus coaching:

I wanted to touch base with you about today's video. First of all, the book was a great choice in that it was fun, interesting, and presented great opportunities for questioning and discussion. You used 7/8 strategies, which is awesome! The only strategy I didn't see

was recall and incorporating that could have simply been asking the kids to remember some aspect about the story. Your use of questioning was really great and I love that you pointed out the words on the signs, prompting someone to ask a question specific to the print on a sign, or I guess the lack of print on a sign. I am also looking at child engagement as a result of your use of strategies and not only was everyone more interactive and very engaged, but “D” (one of my targets) made a really great comment about her experiences at the zoo because you were prompting them with such great questions. All of this is fantastic!

One thing I noticed that would be another way to use the strategies even more frequently than you did is to change the wording of questions a bit. For example, instead of asking "Do you think it would be fun to eat just peanuts?" which probably will get only get a yes or no response, you could ask them an open-ended or distancing prompt by saying..."How do you think it would feel to eat just peanuts?" or "Has there ever been a time when you had to eat just one thing?" Also rephrasing questions in which you give them choices between 2 answers..."Do you think it would be A or B?" you could change it to a simple ‘wh’ or open-ended question, without giving them choices of answers.

## **Follow-up**

Following the conclusion of the intervention condition, it was anticipated that at least three follow-up probes would be conducted with each teacher such that one assessment would occur at three, six, and nine weeks following their participation in the intervention phase. However, due to an unanticipated delay in initial start of the study and ending of the “school year” and subsequent “move-ups” and reorganization of the classrooms only two week follow-ups were conducted with two of the three teachers. Follow-up on Andrea and Maggie were

possible only at two weeks due to child and teacher absences (i.e. vacation). Follow-up on Molly is still set to occur at 3, 6, and 9 weeks as the delays mentioned above did not impact her classroom. The follow-up condition followed the same procedures for videotaping as the baseline and intervention conditions, however, no feedback was provided to the teachers by the researcher.

### **Measurement**

Teacher and child behaviors were assessed to determine differences related to the intervention. Videotaped probes for each shared book reading session were transferred to a laptop computer using Quick Movie Magic Software. The video clips were viewed using Windows Media Player in which a time stamp is displayed for precise interval coding. The participant behaviors were coded using the teacher and child behavior measurement procedures discussed below. In addition, procedures for evaluating social validity, determining interobserver agreement, and analyzing data are discussed.

#### **Teacher Behaviors**

Teacher behaviors were assessed three ways: a pre/post quiz score to assess change in knowledge, an interval recording system to assess rate per minute and fidelity of implementation of specific early literacy instructional strategies, and a quality rating index to assess quality of teacher/child interactions. Teacher behaviors and procedures for assessing these behaviors will be discussed below.

**Pre/post quiz.** The first assessment of change in teacher behavior was through a pre/post quiz provided to teachers prior to and at the completion of viewing the content of the technology enhanced platform. Several steps took place in development of the quiz. First, objectives for the expected outcome of the quiz were established by the researcher. Upon viewing the content, it

was expected that teachers would be able to recall the content of the session, for example, the components of dialogic reading, print referencing, quality of interactions, as well as other information related to early literacy and book reading. It was also expected that teachers would be able to apply the content of the session (i.e. dialogic reading and print referencing strategies) to an actual storybook that was provided to them. With the objectives articulated, questions were constructed. To ensure appropriateness of test item formats, a reference on quality test item construction was reviewed (Zimmaro, 2004) and used to provide guidance on how to pose effective questions in formats that best assess instructional objectives. Quiz questions were developed and modified prior to field testing through consultation with researchers and early childhood professionals. The five field testers of the technology enhanced platform were also asked to complete and provide feedback on the quiz (i.e., pre and post viewing) as they viewed the content in the technology enhanced platform. Feedback and suggestions were incorporated into the quiz and questions were modified as needed. Appendix B displays the final pre/post quiz that was provided to teachers.

**Rate and fidelity.** The second assessment of change in teachers behavior conducted was the number of times that teachers implemented the dialogic reading and/or print referencing strategies (i.e. rate) and whether or not teachers implemented all of the required components at least once during each book reading session (i.e. fidelity). The techniques utilized during book reading that comprise the operational definition of “dialogic reading” for the purposes of the current study are adapted from Whitehurst and colleagues (1994). Their operational definition aligns with the acronym *CROWD* and are specified as *completion* prompts (i.e., “C”), *recall* prompts (i.e. “R”), *open-ended* prompts (i.e. “O”), *wh-prompts* (i.e., “W”), and *distancing* (i.e. “D”) prompts by the adult. The techniques utilized during shared book reading that comprise the

operational definition of “print referencing” are adapted from Justice and Ezell (2004) and include the following: (a) questions about print, (b) commenting about print, and (c) tracking finger along print while reading. Table 5 provides the operational definitions and rules that were established for each component of dialogic reading and print referencing for coding of the videotaped sessions.

Using the operational definitions in Table 5 coders viewed the time stamped video clip of the session and recorded on the data coding sheet. The coding sheet provides abbreviations for each of the 5 dialogic reading (i.e. C.R.O.W.D) and 3 print referencing (Q/P, C/P, and T/F) strategies horizontally with intervals in minutes vertically. See Appendix C for the coding sheet for this measure. The observational period began when the teacher gave clear indication that the storybook session was beginning (i.e. children are seated and teacher is introducing the book) and continued until the session was complete. Each time the event of interest occurs, i.e. the utilization of one of the strategies outlined in Table 5, the instance was recorded. Recording of a strategy was such that the mark indicating use of a particular strategy was clearly within the appropriate box on the data sheet. Any mark outside of the appropriate box was not counted. Further, no mark indicated in a box for a strategy signified a non-occurrence of the strategy during an interval.

The teacher’s frequency of strategy use was converted into a rate per minute of occurrences of the behavior. To calculate the rate per minute, the use of each strategy as recorded in the data sheet columns was totaled, and then combined across all columns (i.e. strategies) for a total of all strategies used during the session. This total number was then divided by the length (in minutes) of the session.

Fidelity was calculated as a percentage, by indicating whether that strategy had been used (with either a yes or no) at least once during the session, and then summing across the columns for a total number of yes indicators. The total number of yes indicators was then divided by the total number of possible strategies, or eight.

**Quality rating index.** The third dependent variable related to change in teacher behavior measured in this study is the quality of interactions teachers demonstrated towards children during the book reading session. The rubric on quality of teacher interactions was adapted from the Indicator of Parent-Child Interaction (IPCI) (Baggett, Carta, & Horn, 2006). The IPCI is one measure in a set of five indicators of individual growth and development for infants and toddlers (Carta, Walker, Greenwood, & Buzhardt, 2010) (see Appendix C for the full measure in original format). The IPCI can be used to assess growth toward the outcome of interactions in which parents and other primary caregivers respond to a child in ways that promote positive social-emotional behaviors, and is typically completed by early childhood practitioners and interventionists. The IPCI can be used across activities such as free play or dressing for an individual child with caregiver facilitators, caregiver interruptions, child engagement, and child reactivity as the measured indicators. Reliability and validity assessment of the IPCI was conducted on 65 children and their parental caregivers who varied in race, ethnicity, SES, and disability status and were purposively sampled from an inner urban Early Head Start program and a rural, middle class child care center that served children from birth through 42 months of age. A repeated-measures cohort design was used to assess in-home parent-child interaction once per month for six months using the IPCI, yielding a total of 350 observations. All parents and children participated in pre-assessment and post-assessment that included demographic information as well as measures that assessed parenting beliefs and attitudes, maternal



depression, quality of the home environment, and child social-emotional functioning. In addition, parent-child interaction was observed at pre- and post-assessment.

For the purposes of this study, the IPCI was modified to include only facilitators and interruptions as the measured behaviors, and in place of caregiver, teacher was indicated. Further, definitions and examples for facilitators and interruptions were modified to fit a classroom setting, specifically within the context of a book reading session. An example of a modified ‘uses descriptive language’ behavior would be, in place of the scenario: Child is looking at a book and Auntie says, “You see the duck? The duck says ‘quack, quack’,” would be the scenario: Child is looking at the book and says, “There is a duck.’ The teacher responds, “That’s right, the duck is waddling down to the pond.” Teacher behaviors with respect to teacher facilitators (i.e. acceptance/warmth, uses descriptive language, follows child’s lead, introduces/extends, and responds to distress) and teacher interruptions (i.e. criticism/harsh voice, restrictions/intrusions, and rejects child’s bid) were rated. These two behavior patterns were chosen to capture whether teachers were attending to children’s needs and utilizing interaction strategies that facilitate active rather than passive engagement by children during book reading sessions. Behaviors were coded on a likert scale ranging from 0 (i.e. never) to 3 (i.e. often). See Appendix C for the modified rubric sheet used for recording the observations for this measure.

The rubric was completed by the researcher following every videotaped probe of a book reading session for each teacher. Scores were added for each dimension of behavior contributing to the teacher facilitators and used to calculate an overall percentage of teacher facilitator behavior during the book reading session. Percentage was calculated by totaling the scores across the 5 facilitators and dividing by the overall score possible, or 15. If no opportunity was indicated for “responds to distress” then the overall score was reduced by 3. Similarly, items

classified as teacher interruptions were totaled. Using this method, higher percentages in teacher facilitators indicated more positive behaviors and higher percentages in teacher interruptions indicated more negative behaviors. Definitions and examples for each of the dimensions of teacher facilitators (i.e. acceptance/warmth, uses descriptive language, follows child's lead, introduces/extends, and responds to distress), and teacher interruptions (i.e. criticism/harsh voice, restrictions/intrusions, and rejects child's bid) are shown in Appendix C.

### **Child Behaviors**

Child behaviors were assessed in two ways: a rating of a child's level of engagement and the complexity of that engagement. Each data point represents the average of the two children observed in each teacher's classroom, except for the two children in Molly's classroom. Averaging Annie and Denise's data would have mediated the effects that were observed for each child. Descriptions of level and complexity of engagement are discussed below.

**Level and complexity.** Definitions for level of engagement during a book reading session and the complexity of the engagement were adapted from McWilliam (2000) Scale for Teacher's Assessment of Routines Engagement (STARE). The STARE is a rating scale for measuring child engagement levels and interactions within the context of classroom routines. The focal child's behavior in terms of engagement is rated along two dimensions: frequency of being engaged with peers, adults, and materials and, complexity. The child is observed for 10 minutes in each activity, for example circle time and free play, and the information gathered is typically used for intervention planning and monitoring. See Appendix D for the STARE scoring sheet. No information on the reliability and validity of the STARE was available.

For the purposes of this study, the STARE scoring sheet was modified to focus on one routine, book reading sessions, with no restrictions on length of the session. Just as in the

STARE, levels of engagement include the following: almost none of the time, little of the time, half of the time, much of the time, and almost all of the time. At the conclusion of a shared book reading session, one category was chosen that best fits the overall level of engagement during the session. See Appendix D for the modified scoring sheet for this measure.

The measure for complexity of engagement, while still on the same scoring sheet as level of engagement, was separated for ease of scoring and again only focused on the routine of book reading with no restriction on length of session. Complexity of engagement included the following: (a) non-engaged in which the child is demonstrating inappropriate behavior (aggression, breaking rules, stares blankly, wanders around aimlessly, or cries), (b) unsophisticated in which the child is casually looking around and is not focused on the teacher, (c) average in which the child is following the routine as expected and is actively interacting with his or her surroundings, (d) advanced in which the child uses understandable context-bound language (language that refers to a person or situation that is present), and (e) sophisticated in which the child is talks about someone or something that is not present. The measure was further modified such that three checks roughly at the beginning, middle, and end of each session were recorded and then averaged to represent a final score for complexity of engagement.

Further, it was observed that across teachers during the baseline condition, children were near or at ceiling on complexity of engagement. To help reduce the ceiling effects and provide room for potential growth during the intervention condition, the following additional components were added prior to Andrea entering intervention. The researcher made tallies to indicate that a comment had been made during each of the beginning, middle, and end of the book reading session. Children were given a score of 3 during each of the beginning, middle, and end of the session if they made 2-3 comments. Additionally, children were given a 4 during each of the

beginning, middle, and end of the session if they made 3 or more comments. Comments that met the criteria for a score of 5 were scored independently of this additional component.

### **Social Validity**

Social validity is a means for determining whether a particular intervention is accepted by society or by the consumers of the intervention (Wolf, 1978). As stated by Wolf, social validity should address three levels: (a) significance of the goals, (b) appropriateness of the procedures, and (c) importance of the effects. After each book reading session during the intervention period, the researcher asked the teachers what was working well, what was challenging, and how the researcher could be of further assistance. Notes from these discussions were used to assess social validity during the course of the intervention condition. Following the intervention condition, the researcher met individually with each teacher and during a semi-structured interview, gathered information to determine whether the goals, procedures, and effects of the training were socially acceptable. To address goals, the researcher asked the teachers to share their beliefs or philosophy about book reading and their thoughts about how reading books to children impacts their literacy development. To address procedures, the teachers were asked to share the benefits gained from participation in the study as well what challenges they experienced and how the intervention could have been improved upon both in terms of content and support provided. Finally, to address effects, the teachers were asked to comment on how their perceptions about book reading may have changed as a result of participation in the study. The questions designed to assess social validity are attached in Appendix E.

### **Interobserver Agreement**

The researcher served as the primary data collector and coder. Interobserver agreement assessment was conducted for each of the teacher and child measures. A doctoral level graduate

student (i.e. coder) performed reliability checks and was naïve to the phase of the investigation. The researcher trained the coder in the coding procedures in the following way. First the researcher provided the coder with a copy of the behavioral definitions, observational codes, and the recording systems. A discussion of the components of the coding process was held and followed by a group practice of a training video example that closely resembles a situation that coders will be observing. Group practice included a discussion of the behaviors viewed, arriving at an agreement on the coding of the behaviors, and marking the code on the data sheets.

Following group practice, the coders independently scored two additional video examples. The independent scores were analyzed to determine the interobserver agreement percentage to estimate the two coders' consistency. Interobserver agreement was calculated on an interval-by-interval basis in which the total number of agreements was divided by the total number of agreements plus disagreements, and then multiplied by 100%. Training continued until a minimum of 85% interobserver agreement was reached. In addition, the researcher and the reliability coder met weekly, or more often as needed to discuss the coding process to avoid drift from the definitions. Interobserver agreement was conducted on 25% of the videotaped book reading sessions.

Specific to the teacher behavior measures (i.e. rate, fidelity, and quality of interactions), the video was viewed from beginning to end to first score rate and fidelity and then viewed a second time to score quality of interactions. To score rate and fidelity the videos were paused and replayed as necessary to establish definitions and rules for each of the strategies and to add to and/or modify the rules as needed. Discussion about definitions and examples of strategies continued throughout the duration of the study. In terms of quality of interactions, marks were indicated next to each behavior each time an example that met the definition was observed. At

the conclusion of the book reading session, the number of tally marks were counted and considered before rating the item. Discussion about the definitions and examples of the facilitators and interruptions continued throughout the duration of the study.

With respect to child behaviors, the video was viewed a third time with a focus on each target child and their behaviors during the book reading session. The researcher requested that children sit near each other for ease of coding both children at once. The videos were paused and replayed as necessary in order to hear the comments children may have made and discuss behaviors that may have been occurring. Again, discussion about the definitions and example of the child behaviors continued throughout the duration of the study.

### **Data Analysis**

As data were collected, data analysis was conducted on a continuous basis in which data from each videotaped probe of a book reading session was graphed and analyzed following the session and prior to any subsequent probes. Visual analysis of the data was used as the primary means of examining the data. Specifically, the graphs were analyzed to determine the level, trend, and variability of the data as well the immediacy of effect produced in the data pattern after a phase change and the amount of overlap between phase changes (Kennedy, 2005).

### **Results**

Data presented in this section will summarize the results obtained. The results section is organized into the following sections: (a) interobserver agreement, (b) teacher behavior, (c) child behavior, and (d) social validity.

#### **Interobserver Agreement**

As described earlier, interobserver agreement was collected on 25% of the book reading sessions, extending across participants and conditions. Interobserver agreement had a mean of

87.2% for the teacher behaviors (range, 80.2-95.6%), 85.9% for the child behaviors (range, 77.5-97.3), and 80.5% for the quality of interactions rubric (range, 74.3-92.1%).

### **Teacher Behaviors**

Teacher behaviors were assessed three ways: a pre/post quiz score to assess change in knowledge, an interval recording system to assess rate per minute and fidelity of implementation of specific early literacy instructional strategies, and a quality rating index to assess quality of teacher/child interactions. The results from the pre/post quiz scores across all three teachers are presented below followed by the results from the rate per minute and fidelity recording system and quality of interactions rubric data.

**Pre-post quiz.** Prior to and upon completion of viewing the intervention content, teachers were asked to complete a quiz. Scores on these quizzes were used to determine if in fact a change in teacher's knowledge level with regard to early literacy strategies had occurred and also signified to the researcher that videotaping probes could begin. Upon receipt of the completed pre and post tests, the researcher followed up with the teachers to ensure understanding of items that were answered incorrectly and to answer any other questions they had. Table 6 displays the results of the quiz across the three teachers.

**Rate, fidelity, and quality.** The results of the rate per minute and fidelity of implementation of specific early literacy instructional strategies, and a quality rating index to assess quality of teacher/child interaction are the presented by teacher below. See Table 7 for a summative report of teacher participants including means and ranges of behaviors utilized across conditions. Furthermore, the across teacher baseline and intervention data for fidelity of implementation of strategies, rate per minute of use of strategies, and quality of interactions are presented in Figures 1, 2, and 3 respectively to support visual inspection of the time series data.

**Andrea.** As depicted in Figure 1, Andrea was highly variable with her fidelity of use of strategies across baseline ( $M = 47.3\%$ ; range 25-73%), intervention ( $M = 56.3\%$ ; range 25-88%), and follow-up 88%. As previously mentioned, due to unforeseen issues with length of data collection, Andrea was only video-taped one time for maintenance approximately 2 weeks after the end of the intervention period. During the baseline condition, fidelity was highly variable with a fair amount of bounce in the data. The intervention content was provided after session 4 and the fidelity remained relatively stable and low until session 9 when there was a positive, accelerating trend. Between sessions 10 and 15 the data developed a cyclical pattern with two overlapping data points (i.e. sessions 12 and 14) with baseline data. Data on fidelity for the follow-up condition was similar to the last data point collected during intervention.

Andrea's rate per minute of use of strategies was moderately variable during the baseline condition ( $M = 1.07$ ; range, .58-1.66) (see Figure 2). During the intervention condition ( $M = 2.23$ ; range, .66-4.17), there was a positive, accelerating trend with three overlapping data points (i.e. sessions 6, 8, and 14) with baseline data. Data on fidelity for the follow-up condition was similar to the last data point collected during the intervention period.

Data on Andrea's quality of interactions during baseline displayed some variability for teacher facilitators ( $M = 65\%$ ; range, 50-75%), and was stable for teacher interruptions ( $M = 33\%$ ; range = 0%) (see Figure 3). During the intervention condition ( $M = 76.6\%$ ; range, 53-83%), data on facilitators was moderately high and stable, with several overlapping data points (i.e. sessions 6, 7, 11 and 14) with baseline data. Mean percentages were slightly higher in the intervention condition. Data on facilitators for the follow-up condition was slightly above the last data point collected during the intervention period. With respect to teacher interruptions during the intervention condition ( $M = 18.33\%$ ; range, 0-44%), data displayed a stable downward trend



with the exception of sessions 7 and 14 that overlapped with baseline data and displayed higher mean percentages. Data on interruptions for the follow-up condition was equal to the last data point collected during the intervention period.

**Maggie.** Data for fidelity of use of strategies was moderately variable during the baseline condition ( $M = 26.3\%$ ; range, 13-38%), as depicted in Figure 1. During the intervention condition ( $M = 72.2\%$ ; range, 38-100%), there was not an immediate change seen until session 16, when a positive, accelerating trend was displayed and maintained until the intervention was faded in sessions 21 and 22. Data on fidelity for the follow-up condition was equal to the last data point collected during the intervention period.

As depicted in figure 2, Maggie's rate per minute of use of strategies was also moderately variable during the baseline condition ( $M = .9$ ; range, .25-2.32). Upon entering intervention, rate per minute was low and stable until session 16, when an upward trend was displayed ( $M = 3.0$ ; range, .94-5.47). With the exception of session 18 that overlapped with baseline data, rate per minute of use of strategies remained well above baseline and was maintained through fading of the intervention in sessions 21 and 22. Data on rate for the follow-up condition was slightly lower than the last data point collected during the intervention period, yet still displayed a higher mean percentage over baseline data.

Data on Maggie's quality of interactions during the baseline condition was highly variable across teacher facilitators ( $M = 40.8\%$ ; range 16-66%) and interruptions ( $M = 18\%$ ; range, 0-33%) (see Figure 3). Upon entering intervention, facilitators and interruptions remained stable until session 15 when facilitators displayed a positive upward trend ( $M = 79.2\%$ ; range, 50-100%), and interruptions became relatively stable and low ( $M = 6.1\%$ ; range, 0-11%). While there were overlapping data points for facilitators (i.e. sessions 13, 14, & 15) with baseline data,

there was a stable, positive increase over baseline that was maintained through fading of the intervention in sessions 21 and 22. Several data points for interruptions overlapped with baseline data, however a low, stable trend was maintained through fading of the intervention in sessions 21 and 22. Data on facilitators and interruptions for the follow-up condition was similar to the last data point collected during the intervention period.

**Molly.** During the baseline condition, as shown in table Figure 1, Molly was highly variable in fidelity of use of strategies ( $M = 27.7\%$ ; range, 0-50%). Upon entering the intervention condition, Molly's fidelity was initially stable, and then began a positive upward trend and remained stable and high ( $M = 79.5\%$ ; range, 38-100%), through fading of the intervention in session 28. Follow-up on Molly is set to occur at 3, 6, and 9 weeks.

Rate per minute of use of strategies for Molly, as depicted in Figure 2, was highly variable ( $M = .9$ ; range, 0-2.56) during the baseline condition. During the intervention condition ( $M = 2.24$ ; range, 1.95-2.69) all but one of the data points (session 28) overlapped with baseline data, however, Molly's average was well above her average in baseline and was maintaining at a high, stable rate through fading of the intervention at session 28. Again, follow-up will occur at a later time.

With respect to quality of interactions as depicted in Figure 3, Molly's facilitators during the baseline condition ( $M = 80.4\%$ ; range, 67-100%) were variable at a high level. Interruptions ( $M = 7.7\%$ ; range, 0-22%), were initially stable at a low rate, with a slight increases occurring at sessions 10, 13, and 17. During the intervention condition ( $M = 98.8\%$ ; range, 93-100%), Molly's facilitators were maintaining at a stable, very high rate. Interruptions ( $M = 1.83\%$ ; range, 0-11%) were maintaining at a low, stable rate during the intervention condition. Facilitators and

interruptions were maintaining at a very stable high and stable low respectively, through fading of the intervention at session 28. Follow-up on Molly will be collected at 3, 6, and 9 weeks.

### **Child Behaviors**

Data were collected on dependent variables for child behaviors during book reading sessions. The results from the rubric scoring system for level and complexity of engagement are presented below for the child participants. Because the children from Andrea and Maggie's classrooms did not vary significantly in their data and as a way to mediate the effects of absences, data from both children from each classroom are averaged. The data for the children in Molly's classroom did show variations, and are therefore reported individually. Further, data collection on Annie and Denise did not begin until session 7 as they were recruited after the two original recruits were no longer able to participate. See Table 8 for a summative table for all child participants including means and ranges of behaviors displayed across conditions. Furthermore, the across child baseline and intervention data for *level and complexity of engagement* are presented in Figure 4 to support visual inspection of the time series data.

**Andrea's children.** During the baseline condition, as depicted in Figure 4, Andrea's children were high and relatively stable in level of engagement ( $M = 90\%$ ; range, 80-100%), and were stable at approximately a mid-range for complexity of engagement ( $M = 63.5\%$ ; range, 57-67%). Upon entering the intervention condition, data on level of engagement was initially maintained at a high, stable trend until a decreasing trend began in session 9 and then leveled off through session 15 ( $M = 84.4\%$ ; range, 70-100%). There was overlap between data in baseline and intervention conditions for level of engagement. Follow-up at session 18 shows a slight increase over the last data collection point at the end of the intervention period. Data on complexity of engagement continued to be moderately high and stable upon entering the

intervention condition ( $M = 65.2\%$ ; range, 60-70%), and continued through follow-up at session 18 again with overlap between data in baseline and intervention condition. Although there is some variability noted in data on complexity of engagement across conditions, no significant differences in the data were observed.

**Maggie's children.** During the baseline condition, Maggie's children were high with some variation at sessions 1, 8, 10, and 11 in level of engagement ( $M = 90.9\%$ ; range, 70-100%), and moderately high and stable in complexity of engagement ( $M = 64.7\%$ ; range, 60-73%) (see Figure 4). Level of engagement was high and stable ( $M = 100\%$ ; range, 0), continuing at ceiling through the end of the intervention period, with overlapping data between baseline and intervention conditions. No significant differences were observed. Except for an ascending trend in the data at sessions 11 and 18, complexity of engagement remained moderately high and stable throughout the intervention period ( $M = 64.5\%$ ; range, 60-80%), again with no significant differences observed. Overlapping data between baseline and intervention conditions was observed. Data on level and complexity for Maggie's children was similar to the last data point collected during the intervention period.

**Annie.** In the baseline condition, Annie's level of engagement was highly variable ( $M = 81.7\%$ ; range, 60-100%) while complexity of engagement was moderately high and stable ( $M = 58.8\%$ ; range, 53-60%) (see Figure 4). Upon entering the intervention condition, Annie's level of engagement depicted an almost immediate increase and was maintained at ceiling through fading at session 28 ( $M = 88\%$ ; range, 60-100%). Complexity of engagement, upon entering the intervention condition, was moderately high and stable with two ascending trends depicted at sessions 25 and 28 ( $M = 68\%$ ; range, 60-87%). Although overlap between data points in baseline and intervention were observed, mean averages for both level and complexity of engagement

were slightly higher in the intervention condition. Differences were not considered to be significant.

**Denise.** Data on Denise's level of engagement demonstrated a high stable rate (many at ceiling) during the baseline condition ( $M = 98.8\%$ ; range, 80-100%) (see Figure 4), except for one descending trend at session 13. Complexity of engagement was moderately high and stable during the baseline condition ( $M = 61.6\%$ ; range, 60-73%). Upon entering the intervention condition, level of engagement remained at ceiling ( $M = 100\%$ ; range, 0), while complexity of engagement showed a slight ascending trend ( $M = 73.3\%$ ; range, 60-87%) with one descending trend seen at session 26. No significant differences were found for level of engagement for Denise. Mean averages for complexity of engagement were slightly higher in the intervention condition than in the baseline condition, although the difference was not considered to be significant.

### **Social Validity**

Following the intervention condition, each teacher provided individualized feedback about their experiences while participating in this study through an informal, semi-structured interview. Demographic information related to the teachers (i.e. age, years teaching, educational background, and previous literacy trainings) and children (i.e. age, gender, SES, disability status) was collected during the interview as well as answers to 5 open-ended questions. Appendix E provides the interview questionnaire used.

All three teachers reported receiving benefits from the study, particularly in terms of their perceptions about book reading before and after participation. Andrea reported that she looks for “word clues” in pictures when she selects and reads books to the children, after learning about print referencing strategies during the intervention. Maggie described now being more aware of

print on the pages besides just the words. For example, with the word ‘stop’ (on a sign) you can talk to the kids about the word and what it means. She went on to say, “I know it takes a little bit more time and you don’t have to do it on every page, but that was kind of neat to know.” Maggie also talked about re-reading books, saying that you can “skim” over books before you start reading so it will be a little bit easier to reach the kids. She provided an example from a book they had read that day saying, “...we looked it over again and we talked about the rhyming words in the book and that there is meaning to the words.” Finally, Maggie appreciated being reminded about such things as re-reading stories because while she thinks about it, she is sometimes not able to do it. Molly talked about her change in perceptions with regard to conversations during book reading saying:

My view of reading to the class was always you can stop for comments here and there but mainly just to get through the story so they could stay focused and they could continue piecing it together. After having done this study I realize you can have quite a lengthy conversation and the kids are still with you and they can keep with you where you are going. I thought that was interesting because I am now a lot more willing to point out things, whereas before I thought if I do that I might lose them. And it engages them more when you point out different things.

The teachers further reported that the coaching provided via email was helpful to them as they moved through the process of incorporating the strategies into their practices. Specifically Maggie commented that she actually copied them and read them over a little bit so that she could see the process that she could do during the readings. While Molly was provided with some oral feedback immediately following the readings, she appreciated having the suggestions written

down and sent to her via email as well because then she had something to “refer back to.” She also thought the very specific feedback and suggestions were great.

Finally, the teachers also discussed what they perceived to be the expectations for their participation in the study. Andrea and Maggie came into the study with the belief that they would receive information about how to support children, particularly children who were struggling. Specifically, they understood that they were to identify children in their class for whom they had behavioral and/or skill concerns and then would receive input on how to address those children’s behavioral concerns. They noted some disappointment when in fact they did not receive this type of information. Based on their comments during the interview it appears that these two teachers did not understand that they were in fact participating in professional development focused on their learning new skills and content. This misunderstanding about the purpose of the study and their disappointment in terms of not receiving the benefit that they had anticipated very likely negatively impacted their learning and more importantly their application of the content. In other words, their willingness to integrate the content into their everyday practices and take ownership of the change in the way they “do book reading” and thus the social validity of the techniques, was reduced.

## **Discussion**

This study investigated the impact of professional development (i.e. components of dialogic reading, print referencing, and quality of interactions) on the instructional behaviors of teachers of children between the ages of 3 and 5 during book reading sessions. Three research questions were investigated to determine if after participating in the training teachers’: (a) level of knowledge about the intervention content changed, (b) rate per minute of use and fidelity of use of the intervention content changed, and (c) quality of interactions with children during book

reading sessions improved. A secondary question was posed to determine the effect of teacher training on children's engagement during book reading sessions, specifically, did children's level and complexity of engagement change as a result of teacher's participation in the training. In this section, (a) summary of findings, (b) limitations of the study, and (c) implications for future research and practice will be addressed.

### **Summary of the Findings**

The purpose of this study was to assess the effectiveness of a professional development package (i.e. components of dialogic reading, print referencing, and quality of interactions) on the instructional behaviors of children between the ages of 3 and 5 during book reading. The professional development package included delivery of content via a technology enhanced platform, plus coaching on the components after delivery of content. The research design, a multiple baseline (i.e. probes) across participants was replicated across three teachers. Results of the study indicate that the professional development package was effective in promoting teacher's learning. The results showed that teachers applied the intervention content, using the intervention strategies taught at higher levels after the intervention than during baseline. Even teachers who began the intervention with higher levels of rate per minute of use of strategies and fidelity of use of strategies increased their mean averages from the baseline condition across both measures. In terms of quality of interactions, teachers increased their use of positive interactions (i.e. facilitators) and decreased their use of negative interactions (i.e. interruptions) from the baseline condition. These results indicate that providing teachers with strategies to incorporate into their practices, in this case book reading, and supporting them through a coaching process in which specific, timely, and direct feedback is provided, is an effective approach to professional development for early childhood educators. Results also indicate that teachers from a variety of



training backgrounds and years of experience can effectively learn and apply new skills and techniques to their current teaching practices.

Even though some variability in Annie and Denise's level and complexity of engagement was observed, no significant differences across teachers and/or conditions were found.

Children's level and complexity of engagement was high (i.e. at or close to ceiling) during the baseline condition, therefore, effects on child behavior as a result of the intervention were not able to be observed. Even though an additional component was put into place to help alleviate ceiling effects during intervention on complexity of engagement, no meaningful differences were observed. These results suggest that complexity of engagement did not change as a function of the intervention. Additional research is needed to determine if a variation in the child engagement measure used in this study or perhaps another engagement measure would produce better results.

Despite the effectiveness of the intervention for all teachers, the extent to which teachers eventually completed the initial training component (i.e., the technology enhanced platform) varied considerably, as did the time needed to reach full implementation across the strategies presented. This issue clearly demonstrates a flaw in this aspect of the training package that also may have impacted the outcomes of the study. After interviewing the teachers, it appears that the interplay of such factors as philosophies about literacy in general and book reading specifically, perceptions about the purpose of the study, and the delivery of the content did influence the ease with which each teacher acquired and implemented the strategies.

For example, Andrea talked about book reading as a routine she normally does in small versus large group settings, particularly during the summer months, and therefore had a more difficult time with the request for large group book reading sessions and assigned seating of

children for videotaping purposes. As she described during the interview session, she likes to move children around to sit where she thinks they will get the most out of the book when she does do large group reading sessions. Further, she utilizes small or individual group reading sessions to introduce those children who will be moving on to kindergarten to first readers and other literacy related activities. Andrea also discussed that she believes book reading to be helpful in teaching children the flow of speech. One of the trainings she had attended prior to this study emphasized vowel and sound development, the age these sounds are expected to develop, as well as ideas for activities to support children who have not yet mastered these skills. One of the children she selected for participation in this study, Cooper, has an IEP for speech and Andrea hoped that techniques for helping him specifically would be addressed during this study. Tommy, the second child from Andrea's classroom, was described as very talkative and impatient when he wasn't called on to share his thoughts and ideas. Andrea hoped that the study would provide her with strategies for assisting Tommy with patience while waiting his turn and allowing other children the opportunity to talk.

Finally, even though the technology enhanced platform was delivered to Andrea between sessions 4 and 5, it wasn't until session 9 when noticeable differences began to occur in the data across rate, fidelity, and quality. Andrea reported that it took her several days to get through the content of the intervention on the flash drive because of technology issues and insufficient time at work to get through the content in its entirety. Sessions 12 and 14 also showed significant decreases across both rate and fidelity, suggesting that it was difficult to consistently implement the content.

Maggie discussed her philosophy about book reading by saying that she uses it as a way to calm children down, especially if it is a book that the children really like to read. She also

mentioned that she thinks it is a good process for them to see a book being read and she can use re-reads as an opportunity to help children “read” the words themselves. Maggie also indicated that she was hoping to get some feedback on how to address Jordan’s attention to task during large group instruction. Maggie was given the flash drive with the intervention content between sessions 11 and 12, however, it wasn’t until session 15 for quality and 16 for rate and fidelity that noticeable differences began to occur. Maggie also commented that it was difficult to get through all of the content at her workplace and she eventually took it home to complete.

Finally, Molly believes that book reading is helpful to children by exposing them to different genres of books and types of print as well as enhancing their phonemic awareness and rhyming skills. She also mentioned that book reading can help pre-readers identify words in text, for example the word ‘no’ and be able to then “read” it on their own. Molly’s decision to select Annie and Denise for participation in the study appeared to be influenced more by familiarity and comfort level with approaching parents about participation, then beliefs about addressing specific areas of concern with the children. Molly was provided with the intervention content after session 20 and noticeable differences were observed by session 23 across rate, fidelity, and quality. While Molly did not indicate difficulty with getting through the content in its entirety, she did mention that it was a bit “daunting” in terms of length and substance.

Given the information provided by each of the teachers, several important lessons were learned. First, teacher’s philosophies about book reading were an important consideration that needed to be addressed prior to development of this study; however, this information was not elicited until after the study was concluded. According to Fullan (2007), in order for meaningful change to occur with respect to educational reform, teachers need to “buy-in” to the proposed change. For this to occur, teachers need to perceive that the change is beneficial and worthy of

the time and commitment being asked of them. Perhaps more in-depth interviews with each of the teachers prior to beginning the study, particularly with regards to beliefs about literacy and book reading, could have provided more information about how to individualize the feedback and support provided to the teachers so as to be more aligned with their belief systems.

Secondly, perceptions about the purpose of the study influenced teachers' perceived role in the study and should have been flushed out and addressed prior to teachers beginning the study. In discussing factors related to characteristics of change that affect implementation, Fullan describes four: (a) need, (b) quality, (c) clarity, and (d) complexity. The characteristic of clarity seems particularly relevant to the current discussion. Clarity about goals and means can be problematic in the change process, as even when teachers want to make improvements, the proposed change may not be clear as to what teachers should be doing differently (Fullan, 2007).

Prior to the beginning of the study, Andrea and Maggie were of the understanding that the strategies and techniques that were going to be provided to them were meant to directly affect children skills and abilities more so than influence their practices during book reading. However intended change, for the purposes of this study, was meant to occur foremost with teacher's practices and behaviors with resulting potential impact on children. Misperception about the purpose of the study may have contributed to the teachers struggle with consistently implementing the intervention content as well as their motivation for wanting to continue to actively participate in the learning process. Potentially, a better understanding of the intended outcome (i.e. change in teacher's behaviors) prior to beginning the study, with follow-up throughout for continued clarification, would have a positive effect not only teachers follow through with the intervention content but may have also influenced who the teachers chose as child participants.

Finally, the vehicle for delivery of the intervention content was mentioned by all teachers as a stumbling block to their learning, retaining, and eventually implementing the content. Andrea and Maggie commented that presenting the content as all inclusive made it challenging for them to get through in its entirety in one sitting, while Molly commented that while she did get through it one sitting, it was a bit overwhelming. Several suggestions for addressing this issue were provided by the teachers. Presenting the content in smaller sections may help to alleviate time spent attempting to get through all of the content at once. Further, having activities associated with the individual sections or providing handouts for teachers to refer back to may have assisted teachers with not only learning and retaining the material, but also with easier and more consistent implementation. In addition, supporting individual learning styles, either through visual or auditory means, could have been achieved by presenting the content as written material with opportunities for the material to be read aloud.

### **Limitations of the Study**

There are several limitations to note for this study. First, multiple follow-up attempts to determine maintenance of teacher and child behaviors for the first two teacher participants was not possible due to unexpected delays in data collection, all four of the children moving to kindergarten shortly after the conclusion of the intervention condition, and teacher and child absences. While it was anticipated that all data collection, including maintenance, could be conducted over the summer months in community child care settings that do not follow a typical school calendar, attempts to collect data when there is access to children over longer periods of time is recommended. Future research would be needed to determine if in fact the behaviors of teachers (i.e. rate, fidelity, and quality of interactions) and children (engagement) can be maintained several weeks after the end of the intervention condition.

A second limitation is related to the child behavior measure used in this study. Children across teachers and conditions were at or near ceiling on level and complexity of engagement throughout the duration of the study. As previously mentioned, attempts to reduce ceiling effects on complexity of engagement prior to intervention beginning with the first teacher were not successful. Therefore, child engagement as a whole did not change as a function of the intervention suggesting that in this case, child engagement was not an appropriate child outcome measure. Athena and Maggie's children were older five year olds when this study was conducted and as such were already highly engaged during book reading sessions. More variability in engagement was seen with Molly's children, who were young four-year-olds, suggesting that age of children may impact engagement and future research should take this into consideration.

A final limitation to this study is related to how fidelity and rate were measured. Teachers were able to reach 100% fidelity of implementation by using each of the dialogic and print referencing strategies only once during the book reading session. Thus, there is the possibility that use of certain strategies did not occur more than one time during the entire book reading session, and perhaps were not used more frequently and consistently than during the baseline condition. Use of certain strategies, distancing, recall, and completion prompts for example, was more difficult than the others and took the longest to consistently implement during the intervention condition, even with specific suggestions and feedback on how to incorporate these strategies. Rate per minute of use was calculated by totaling use of all of the strategies across the length of the book reading session. Tracking finger along print and wh prompts were consistently two of the easier strategies to incorporate and therefore, were used much more frequently during the intervention condition than some of the other strategies. Because tracking finger along print and wh prompts could occur numerous times throughout the

session and were lumped in with all of the other strategies, rate per minute could have been inflated and not accurately reflect increased use of individual strategies. Providing a breakdown of use of each strategy during the baseline and intervention condition could provide more insight into which strategies are more easily and fully implemented than others, and future research should take this into account.

## **Implications**

This study focused on professional development as a means to change teacher's behaviors, and as a result children's behavior, during book reading sessions. The goal of the study was to determine whether intervention content plus coaching was effective in impacting teacher's learning and resulting application of the intervention content, with potential resulting effects on children's engagement. The use of a technology enhanced platform paired with coaching was designed to provide teachers with easy and flexible access to the intervention content and then support them with continuous feedback during application of the intervention content.

Although the results of this study were not as strong as anticipated, the professional development approach presented offers some unique contributions to the literature. First, change in teacher behavior with respect to rate and fidelity of strategy use was measured using a single measuring tool, a technique which has not been widely utilized in other studies. Secondly, most of the coaching that was provided to the teachers was done via electronic means (i.e. email correspondence). Coaching has shown promise in the research literature, however, a frequent criticism of this approach to professional development is the cost, particularly in terms of time for the trainee and the coach to meet together for discussion. Thus, providing coaching electronically is unique in that it removes or at a minimum reduces the amount of time needed

for face-to-face discussion and thus potentially making it easier for the early childhood educator to receive the information.

An additional component that may benefit teachers is the opportunity to see videos of themselves during book reading sessions, both during baseline and intervention. Given that two of the three teachers believed they were already implementing aspects of the intervention content prior to actually beginning the intervention condition, discussing what they saw and heard on the videos with the researcher may have helped them to better understand how and when specific strategies were being used and/or not used.

Another aspect of training worthy of further research is incorporating more aspects of adult learning characteristics into the study. Trivette, Dunst, Hamby, and O’Herin (2009) identified six adult learning characteristics in their study of the effectiveness of four adult learning methods: (a) introduce, (b) illustrate, (c) practice, (d) evaluate, (e) reflect, and (f) mastery. The current study utilized the characteristics of introducing content to the teachers via the technology enhanced platform and then providing opportunities to practice the content through real-life application, i.e. implementing the content in their classroom. Evaluation was provided to the teachers through coaching, i.e. feedback and suggestions given by the researcher. By including opportunities to illustrate the practice through role-playing and/or modeling, providing opportunities for reflection through journaling, and mastery through self-assessment, teachers may be more willing to not only learn the content but also buy-in to the potential improvements in practice that professional development could provide. For example, with respect to teachers who believe they are already utilizing particular strategies prior to an intervention being provided, reflection and mastery could be particularly powerful in allowing them to see both positive aspects of their teaching as well as potential areas for improvement.



Beyond combining two different professional development approaches (i.e. technology enhanced platform and coaching), this study offers additional areas in which further inquiry could assist in developing more effective packages of professional development for teachers. Although the overall findings indicate that the training package provided to teachers in this study did positively impact their behaviors during book reading sessions, the fidelity and rate per minute of use of strategies as well as quality of interactions, varied. This variation may be attributed to teacher beliefs and philosophies, perceptions about the purpose of the study, and mode of delivery of the content, all of which should be investigated in the future. Furthermore, while clear changes were observed in level of teacher's knowledge, as shown by the results of the pre/post quiz, use of the pre-test as way to focus the content of the technology enhanced platform should be considered. That is, given the fact that the 3 teachers scored 50%, 50%, and 60% correct on the pre-quiz, the content of the training session could have been modified to focus on the 50% or 40% for which the teachers did not provide a correct response. Using this approach, teachers would be provided with only a quick review of the content they responded correctly to on the pre-quiz and more of an in-depth focus in the areas to which they responded incorrectly. This could potentially result in the time spent viewing the content being more efficient and relevant.

Given that teachers did achieve positive growth with respect to implementation of early literacy strategies, an important area to evaluate in the future is the effectiveness of packages of professional development across other content areas beyond literacy. Many different content areas in early childhood can be targeted through professional development, therefore an exploration of the effectiveness of this type of training package on content areas such as math or

social-emotional development would extend knowledge and understanding about this particular professional development approach.

Although this study offers a preliminary look at what professional development within the context of early literacy can do for teachers of children between the ages of 3 and 5, continued work in this area of research and practice are needed. Research and practice efforts should continue to address ways teachers learn, retain, and implement new material by examining the quality of the professional development opportunities being provided. This work offers a beginning for those who develop and provide professional development to early educators and may influence how professional development is perceived and executed in the future.

## References

- Ackland, R. (1991). A review of the peer coaching literature. *Journal of Staff Development*, 12, 22–27.
- Allor, J.H., & McCathren, R.B. (2003). Developing emergent literacy skills through storybook reading. *Intervention in School and Clinic*, 39(2), 72-79.
- Armstrong, K., Cusumano, D.L., Todd, M., & Cohen, R. (2008). Literacy training for early childhood providers: Changes in knowledge, beliefs, and instructional practices. *Journal of Early Childhood Teacher Education*, 29(4), 297-308. doi: 10.1080/10901020802470085
- Arnold, D. S., & Whitehurst, G. J. (1994). Accelerating language development through picture book reading: A summary of dialogic reading and its effects. In D.K. Dickinson (Ed.), *Bridges to literacy: Children, families, and schools* (pp. 103-128). Oxford, UK: Blackwell.
- Baggett, K.M., Carta, J.J., & Horn, E. (2006). *Indicator of parent-child interaction (IPCI)*. Juniper Gardens Children's Project, Kansas City: Kansas
- Bailey, D.B., & Wolery, M. (1992). Goals of early intervention. In D.B. Bailey & M. Wolery (Eds.). *Teaching infants and preschoolers with disabilities* (2nd ed., pp. 33–62). New York: Merrill.
- Barnett, W. S. (2003). Better teachers, better preschool: Student achievement linked to teacher qualifications. Retrieved on July 25, 2010, from <http://nieer.org/resources/policybriefs/2.pdf>
- Bowman, B.T., Donovan, M.S., & Burns, M.S. (2001). *Eager to learn*. Washington D.C.: National Academy of Science.

- Bredekamp, S., & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.
- Burchinal, M. R., Peisner-Feinberg, E., Pianta, R. C., & Howes, C. (2002). Development of academic skills from preschool through second grade: Family and classroom predictors of developmental trajectories. *Journal of School Psychology, 40*, 415–436.
- Carta, J., Greenwood, C., Walker, D., & Buzhardt, J. (2010). *Using IGDIs: Monitoring progress and improving intervention for infants and young children*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Dale, P. S., Crain-Thoreson, C., Notari-Syverson, A. & Cole, K. (1996) Parent–child book reading as an intervention technique for young children with language delays. *Topics in Early Childhood Special Education, 16*, 213–235.
- Dickinson, D. K., & Tabors, P. O. (Eds.). (2001). *Beginning literacy with language: Young children learning at home and school*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Ezell, H.K., & Justice, L.M. (2000). Increasing the print focus of adult-child shared book reading through observational learning. *American Journal of Speech-Language Pathology, 9*(1), 36-47.
- Fullan, M. (2007). *The new meaning of educational change*. New York: Teachers College Press.
- Galinsky, E., Howes, C., & Kontos, S. (1995). *The Family Child Care Training Study: Highlights of findings*. New York: Families and Work Institute.
- Garet, M., Porter, S., Andrew, C., & Desimone, L. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*(4), 915–945.

- Gianvecchio, L., & French, L. (2002). Sustained attention, inattention, receptive language, and story interruptions in preschool Head Start story time. *Journal of Applied Developmental Psychology, 23*, 393-407.
- Greenwood, C. R., Carta, J. J., & Dawson, H. (2000). Ecobehavioral assessment systems software (EBASS): A system for observation in education settings. In T. Thompson, D. Felce & F. J. Symons (Eds.), *Behavioral observation: Technology and applications in developmental disabilities* (pp. 229–251). Baltimore: Paul. H. Brookes.
- Hamre, B. K., Pianta, R. C., Mashburn, A., & Downer, J. (2007). *Building and validating a theoretical model of classroom effects in over 4,000 early childhood and elementary classrooms*. Retrieved July 25, 2010 from the Foundation for Child Development Web site: [http://www.fcd-us.org/resources/resources\\_show.htm?doc\\_id=507559](http://www.fcd-us.org/resources/resources_show.htm?doc_id=507559)
- Hindman, A.H., Connor, C.M., Jewkes, A.M., & Morrison F.J. (2008). Untangling the effects of shared book reading: Multiple factors and their associations with preschool literacy outcomes. *Early Childhood Research Quarterly, 23*, 330-350.
- Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult-child ratio. *Merrill-Palmer Quarterly, 43*, 404–425.
- Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly, 23*, 27–50.
- Hsieh, W-Y., Hemmeter, M.L., McCollum, J.A., & Ostrosky, M.M. (2009). Using coaching to increase preschool teacher's use of emergent literacy teaching strategies. *Early Childhood Research Quarterly, 24*, 229-247.

- Huai, N., Braden, J.P., White, J.L., & Elliott, S.N. (2006). Effects of an internet-based professional development program on teacher's assessment literacy for all students. *Teacher Education and Special Education, 29*(4), 244-260.
- Huebner, C. E., & Meltzoff, A. N. (2005). Intervention to change parent-child reading style: A comparison of instructional methods. *Journal of Applied Developmental Psychology, 26*, 296-313.
- Jordanson, B., Larzelere, R., Clair, L. S., Corr, M., Fichter, C., & Egertson, H. (2006). The impact of HeadsUp! Reading on early childhood educators' literacy practices and preschool children's literacy skills. *Early Childhood Research Quarterly, 21*, 213-226.
- Justice, L.M., & Ezell, H.K. (2004). Print referencing: An emergent literacy enhancement technique and its clinical applications. *Language, Speech, and Hearing Services in Schools, 35*, 185-193.
- Justice, L.M., Kaderavek, J.N., Fan, X., Sofka, A., & Hunt, A. (2009). Accelerating preschooler's early literacy development through classroom-based teacher-child shared book reading and explicit print referencing. *Language, Speech, and Hearing Services in Schools, 40*, 67-85.
- Justice, L. M., & Pullen, P. C. (2003). Promising interventions for promoting emergent literacy skills: Three evidence-based approaches. *Topics in Early Childhood Special Education, 23*(3), 99-113. doi: 10.1177/02711214030230030101
- Kansas Association of Child Care Resource and Referral Agencies (KACCRRRA). Retrieved May 30, 2010 from <http://www.kaccrra.org/>

- Karweit, N., & Wasik, B. (1996). The effects of story reading programs on literacy and language development of disadvantaged preschoolers. *Journal of Education for Students Placed At-Risk*, 4, 319-348.
- Kennedy, C.H. (2005). *Single-Case Designs for Educational Research*. Boston, MA: Pearson Education, Inc.
- Killion, J. (2000). Log on to learn. *Journal of Staff Development*, 21(3), 48-53.
- Koles, B., O'Connor, E., & McCartney, K. (2009). Teacher-child relationships in prekindergarten: The influences of child and teacher characteristics. *Journal of Early Childhood Teacher Education*, 30, 3-21.
- Kontos, S., & Wilcox-Herzog, A. (1997). Teachers' interactions with children: Why are they so important? *Young Children*, 52(2), 4-12.
- Lane, H.B., & Wright, T.L. (2007). Maximizing the effectiveness of read-alouds. *The Reading Teacher*, 60(7), 668-675.
- Lonigan, C. J., & Whitehurst, G. J. (1998). Relative efficacy of parent and teacher involvement in a shared reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly*, 13, 263-290.
- Mashburn, A., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79, 732-749. doi: 10.1111/j.1467-8624.2008.01154.x
- Matthews, D. (1999). The origins of distance education and its use in the United States. *T.H.E. Journal*, 27(2), 54-67.

- McWilliam, R.A. (2000). Scale for Teacher's Assessment of Routines Engagement. In R.A. McWilliam and A.M. Casey (Eds). *Engagement of Every Child in the Preschool Classroom*, (pp.168-170). Baltimore, MD: Paul Brookes Publishing.
- McWilliam, R. A., & Bailey, D. B. (1992). Promoting engagement and mastery. In D. B. Bailey & M. Wolery (Eds.), *Teaching infants and preschoolers with disabilities* (2nd ed., pp. 230–255). New York: Merrill.
- McWilliam, R. A., & Bailey, D. B. (1995). Effects of classroom social structure and disability on engagement. *Topics in Early Childhood Special Education*, 15, 123–147.
- Mol, S.E., Bus, A.G., de Jong, M.T., & Smeets, D.J.H. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development*, 19(1), 7-26.
- Morrow, L., & Gambrell, L. (2001). Literature-based instruction in the early years. In S. Neuman & D. Dickinson (Eds.) *Handbook of early literacy research* (pp. 348 – 360). New York: Guilford.
- National Reading Panel (2000). *Teaching children to read*. U.S. Department of Health and Human Services. Washington, D.C.
- National Staff Development Council. (2001). *NSDC standards for staff development*. Retrieved May 21, 2010, from <http://www.nsd.org/standards/>
- Phillips, G., & McNaughton, S. (1990). The practice of storybook reading to preschool children in mainstream New Zealand families. *Reading Research Quarterly*, 25(3), 196–212.
- Pianta, R.C., la Paro, K.M., Payne, C., Cox, M.J., & Bradley, R. (2002). The relation of kindergarten classroom environment to teacher, family, and school characteristics and child outcomes. *The Elementary School Journal*, 102(3), 225-238.



- Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science*, 9, 144–159.
- Pierce, P., Abraham, L., Rosenkoetter, S. E., Knapp-Philo, J., & Gail, S. (2008). Literacy development. In P. J. Winton, J. A. McCollum, & C. Catlett (Eds.), *Practical approaches to early childhood professional development: Evidence, strategies, and resources* (pp. 187–206). Washington, DC: Zero to Three.
- Putnam, R. T., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4-15.
- Ramey, S.L., & Ramey, C.T. (2008). Establishing a science of professional development for early education programs: The knowledge application information systems theory of professional development. In L.M. Justice & C. Vukelich, (Eds). *Achieving excellence in preschool literacy instruction*, (pp. 41-63). New York: Guilford Press.
- Ridley, S. M., & McWilliam, R. A. (2001). Putting the child back into child care quality assessment. *Young Children*, 56, 92–93.
- Ridley, S. M., McWilliam, R. A., & Oates, C. S. (2000). Observed engagement as an indicator of child care program quality. *Early Education and Development*, 11, 133–146.
- Rudd, L.C., Cain, D.W., & Saxon, T.F. (2008). Does improving joint attention in low-quality child-care enhance language development? *Early Child Development and Care*, 178(3), 315-338. doi: 10.1080/03004430701536582
- Snow, C.E. (1991). The theoretical basis for relationships between language and literacy in development. *Journal of Research in Childhood Education*, 6, 5-10.

Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Research Council, National Academy Press.

Trivette, C.M., Dunst, C.J., Hamby, D.W., & O'Herin, C. E. (2009). *Characteristics and consequences of adult learning methods and strategies*. Retrieved from the Center for Practical Evaluation website: <http://www.practicalevaluation.org>

Valdez-Menchaca, M. C., & Whitehurst, G. J. (1992). Accelerating language development through picture book reading: A systematic extension to Mexican day care. *Developmental Psychology*, 28, 1106-1114.

Walpole, S., & Meyer, C. K. (2008). Models for coaching: Making them work for preschool. In L. M. Justice, & C. Vukelich (Eds.), *Achieving excellence in preschool literacy instruction* (pp. 69–101). New York: Guilford.

Wasik, B.A., & Bond, M.A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, 93(2), 243-250.

Wasik, B.A., Bond, M.A., & Hindman, A. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology*, 98(1), 63-74.

Wells, G. (1985). *The Meaning Makers*. Portsmouth, NH: Heinemann.

What Works Clearinghouse (2006). *Shared book reading*. Retrieved January 10, 2010 from [http://ies.ed.gov/ncee/wwc/reports/early\\_ed/share/](http://ies.ed.gov/ncee/wwc/reports/early_ed/share/)

Whitebook, M., Gomby, D., Bellm, D., Sakai, L., & Kipnis, F. (2009). *Effective teacher preparation in early care and education: Toward a comprehensive research agenda. Part II of Preparing teachers of young children: The current state of knowledge, and a*

- blueprint for the future*. Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California at Berkeley.
- Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A.C., Crone, D. A., & Fischel, J. E. (1994). Outcomes of an emergent literacy intervention in Head Start. *Journal of Educational Psychology*, 86, 542-555.
- Wolf, M.M. (1978). Social validity: The case for subjective measurement, or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis*, 11, 305-312.
- Zevenbergen, A. A., & Whitehurst, G. J. (2003). *Dialogic reading: A shared picture book reading intervention for preschoolers*. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 177-200). Mahwah, NJ: Erlbaum.
- Zimmaro, D.M. (2004). *Writing good multiple-choice exams*. Retrieved from University of Texas at Austin, Measurement and Evaluation Center website:  
<http://www.utexas.edu/academic/mec/publication/index.html>
- Zucker, T.A., Ward, A.E., & Justice, L.M. (2009). Print referencing during read-alouds: A technique for increasing emergent reader's print knowledge. *The Reading Teacher*, 63(1), 62-72.

Table 1

*Program Demographics*

Program	Family Income	Number & (Ratio)	Accreditation	Licensure	Teacher Education
1. A	Low – 20% Middle – 40% High – 40%	Infants – 18 (1-3) Ones – 19 (1-5) Twos – 18 (1-7) Threes – 20 (1-10) Fours – 19 (1-12) Fives – 19 (1-12) KDG – 14 School age – 10 (1-16)	None	State	Range from BA in early childhood to Associates degree
2. B	Low – 22% Middle – 8% High – 70%	Infant/Toddler - 14 (1-3 Infant) (1-5 Toddler) Twos – 14 (1-7) Three-five – 45 (1-12) School-age – 33 (1-16)	None	State	Range from bachelor's degree in education to associate's degree in early childhood

*Note:* This study took place over the summer months, May-July, therefore the child numbers listed are representative of summer attendance for these programs.

Table 2

*Teacher Demographics*

Name	Age	Years Teaching	Educational Background	Literacy Trainings
1. Andrea	38	11	Associate's in Business management	2-3 offered through the local child development agency and non-profit organizations
2. Maggie	40	17	High school diploma	2-3 offered through the local child development agency and non-profit organizations
3. Molly	24	2	Bachelors in Elementary Education	Positive behavior support training, with literacy components, provided through Center B

Table 3

*Child Demographics*

Name	Age	Gender	SES	IEP
1. Tommy	5	Male	Low	No
2. Cooper	5	Male	Low	Yes
3. Jordan	5	Male	Middle	No
4. Leslie	5	Female	Middle	No
5. Annie	4	Female	Middle	No
6. Denise	4	Female	Middle	No

Table 4

*Summary of Intervention Content*

Outline	Learner objectives
Early literacy skills	What is it and why is it so important?
Storybook reading	As a platform for introducing and working on early literacy skills
Evidence-based practices	What are they? Why are they important?
Dialogic Reading	What is it? Examples for each of the components are provided and explained. How do you do it? How-to video and website links to other resources are provided.
Print Referencing	What is it? Examples for each of the components are provided and explained How do you do it? How-to video and website links to other resources are provided
Book Selection	What to look for when choosing books
Practice and Application	Teachers are walked through a storybook where examples of each of the strategies are provided. Teachers are then asked to apply those strategies to a different storybook on their own.
Helpful tips to consider	Ideas and tips about storybook reading for children
Quality of interactions	What is meant by quality of interactions? How do you do it?
Conclusion	What have you learned?

Table 5

*Rules for Strategies*

Strategy	Rules
Completion	Teacher must pause to allow the children to fill in the appropriate word/phrase to count as completion. If teacher is saying the word/phrases with the children, does not count
Recall	Asking children to remember aspects of the story. Can happen while the book is being read, at the end of the story, or before a re-read of the same book. Examples include: "What happened" "What do you remember"
Open-ended	Questions that will lead to a yes/no response do not count, unless the child elaborates after the yes/no response. Questions restricted to either/or answers do not count. Question would lead to child elaborating beyond the context of the book. Examples include: "What was your favorite part of the story?" "What do you think....?" "How do you know?"
Wh-prompt	Specific to context of the book, for example when asking for definitions of words or when point to or referencing a specific page in a book. Examples include: "What does it mean to....?"
Distancing	Includes questions that ask children to bring in their own knowledge to answer the questions. Examples include: "Have you ever...?" "Tell me about a time when...?"
Questions about print	Questions that are asked when specifically referring to print in the book. For example when pointing at signs, letters, or specific words that are different than the other print on the page
Comments about print	Comments that are referring specifically to print in the book. Examples include: "Look right here on this sign it says...."
Tracking finger along print	Each instance of a word or words being pointed at counts



Table 6

*Quiz Results*

Name	Pre-test %	Post-test %
Andrea	50	90
Maggie	50	80
Molly	60	90

Table 7

*Summative Report of Teacher Behaviors*

Teacher	Fidelity%	RPM	Facilitators%	Interruptions%
Andrea:				
Baseline (Range)	M = 47.3% (25-73)	M = 1.07 (.58-1.66)	M = 65% (50-75)	M = 33% (0)
Intervention (Range)	M = 56.3% (25-88)	M = 2.23 (.66-4.17)	M = 76.6% (58-83)	M = 18.33% (0-44)
Follow-up	M = 88%	M = 4.16	M = 100%	M = 0%
Maggie:				
Baseline (Range)	M = 26.3% (13-38)	M = .9 (.25-2.32)	M = 40.8% (16-66)	M = 18% (0-33)
Intervention (Range)	M = 72.2% (38-100)	M = 3.0 (.94-5.47)	M = 79.2% (50-100)	M = 6.1% (0-11)
Follow-up	M = 100%	M = 3.77	M = 92%	M = 0%
Molly:				
Baseline (Range)	M = 27.7% (0-50)	M = .9 (0-2.56)	M = 80.4% (67-100)	M = 7.7% (0-22)
Intervention (Range)	M = 79.5% (38-100)	M = 2.24 (1.95-2.69)	M = 98.8% (93-100)	M = 1.83% (0-11)

Table 8

*Summative Report of Child Behaviors*

Child	Level%	Complexity%
Andrea's children		
Baseline (Range)	M = 90% (80-100)	M = 63.5% (57-67)
Intervention (Range)	M = 84.4% (70-100)	M = 65.2% (60-70)
Follow-up	M = 100%	M = 66.5%
Maggie's children		
Baseline (Range)	M = 90.9% (70-100)	M = 64.7% (60-73)
Intervention (Range)	M = 100% (0)	M = 64.5% (60-80)
Follow-up	M = 100%	M = 67%
Annie (Molly):		
Baseline (Range)	M = 81.7% (60-100)	M = 58.8% (53-60)
Intervention (Range)	M = 88% (60-100)	M = 68% (60-87)
Denise (Molly):		
Baseline (Range)	M = 98.8% (80-100)	M = 61.6% (60-73)
Intervention (Range)	M = 100% (0)	M = 73.3% (60-87)

Figure 1

# Fidelity of Implementation of Strategies

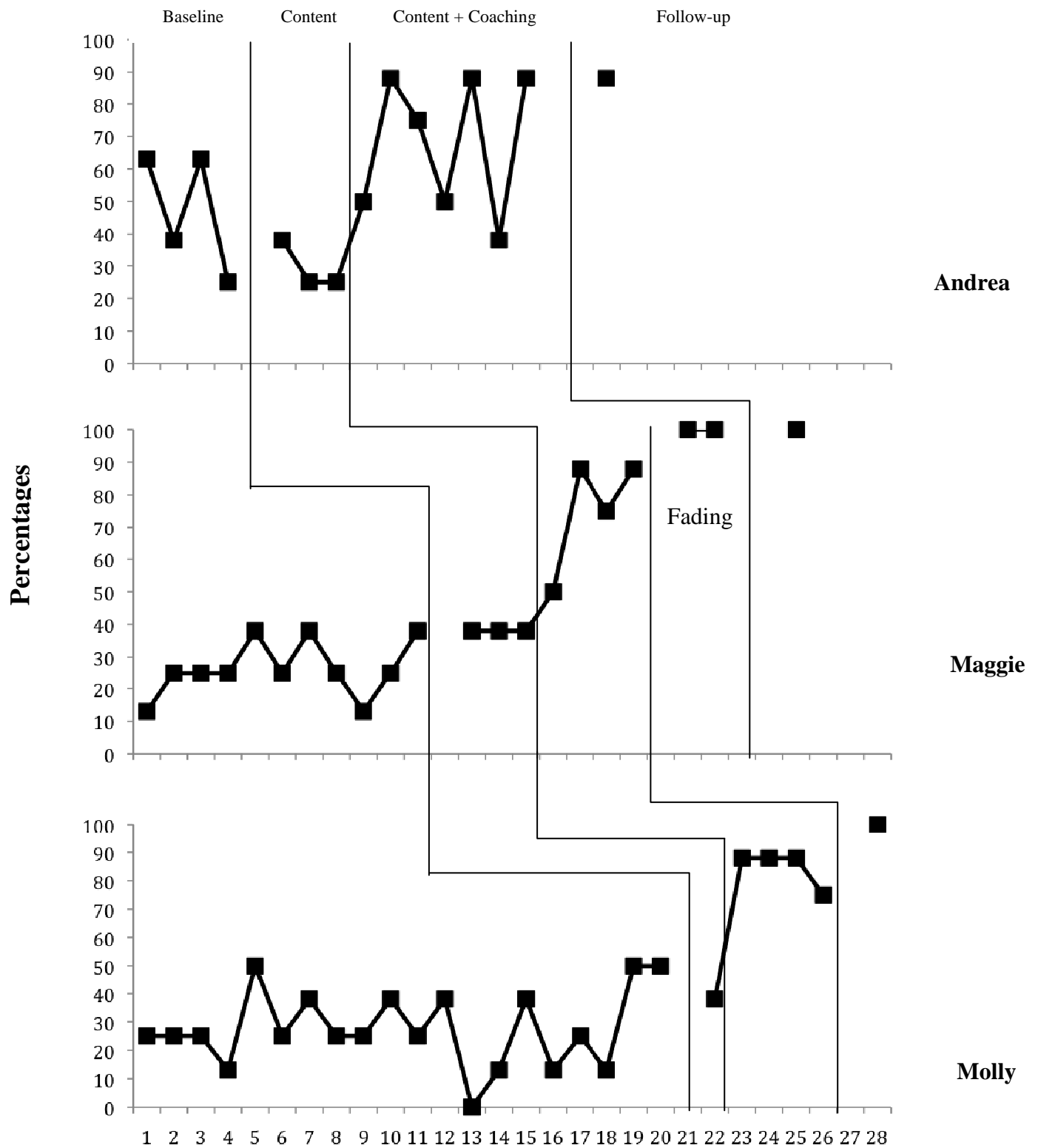


Figure 2

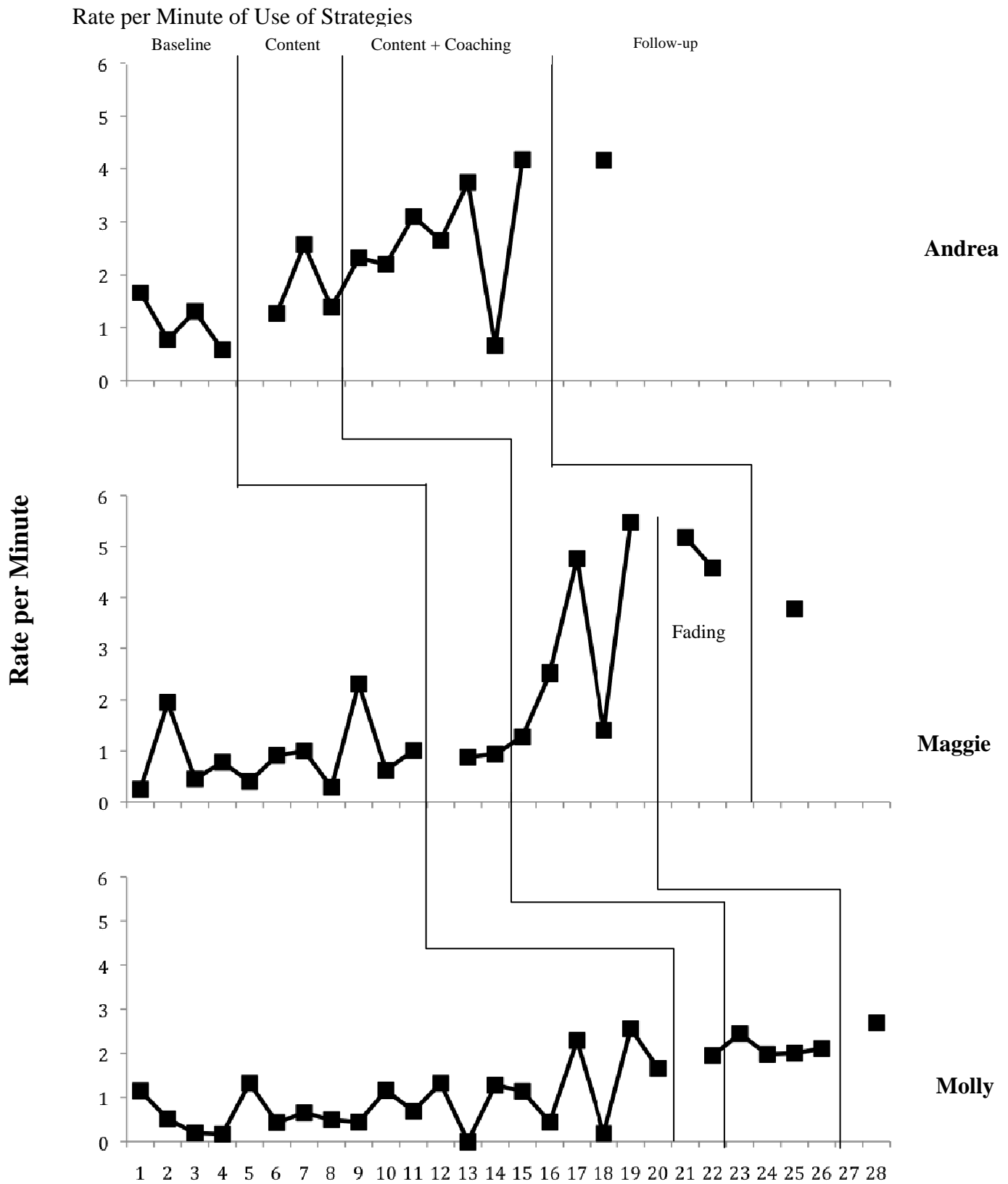


Figure 3

### Quality of Interactions

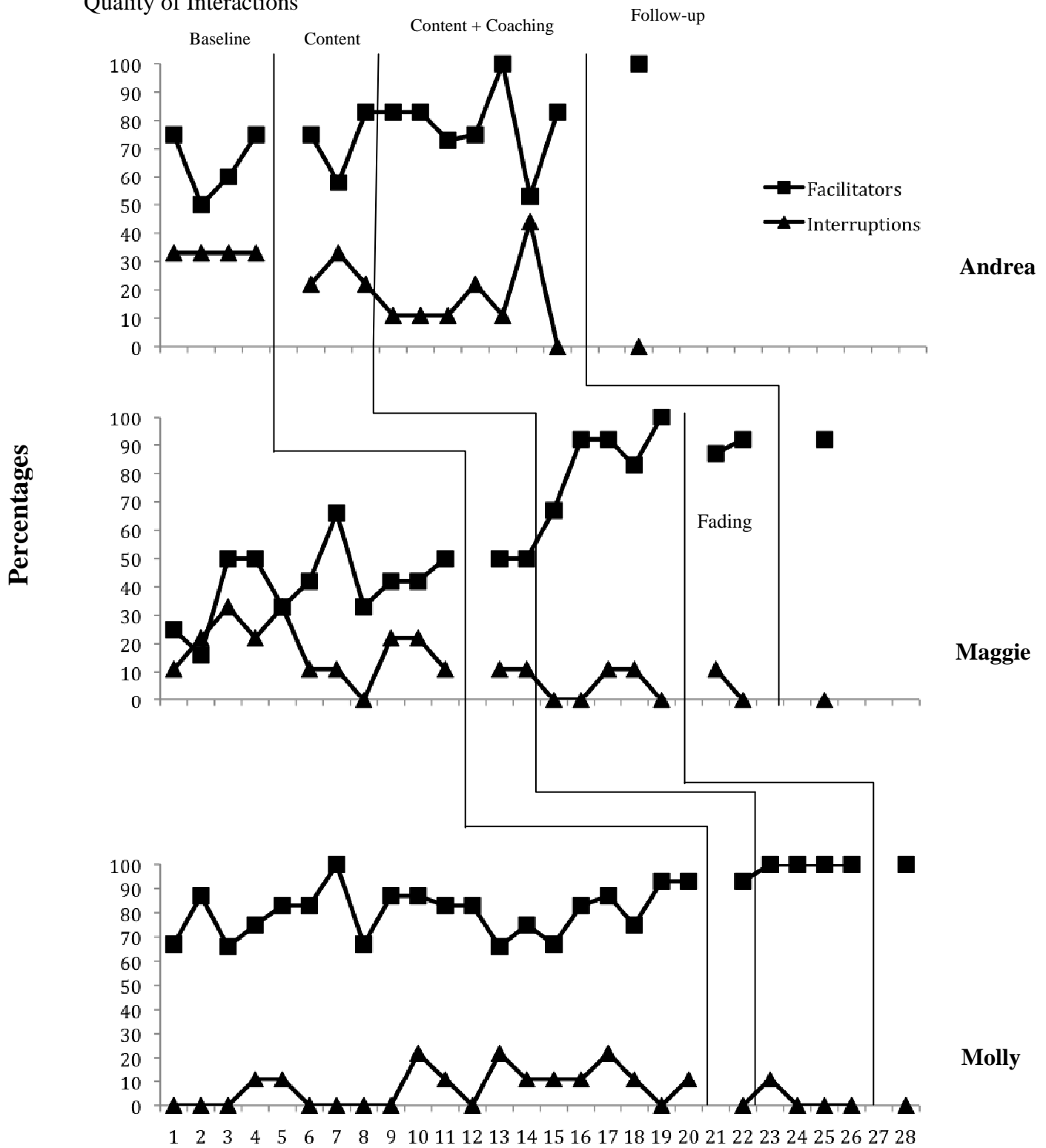
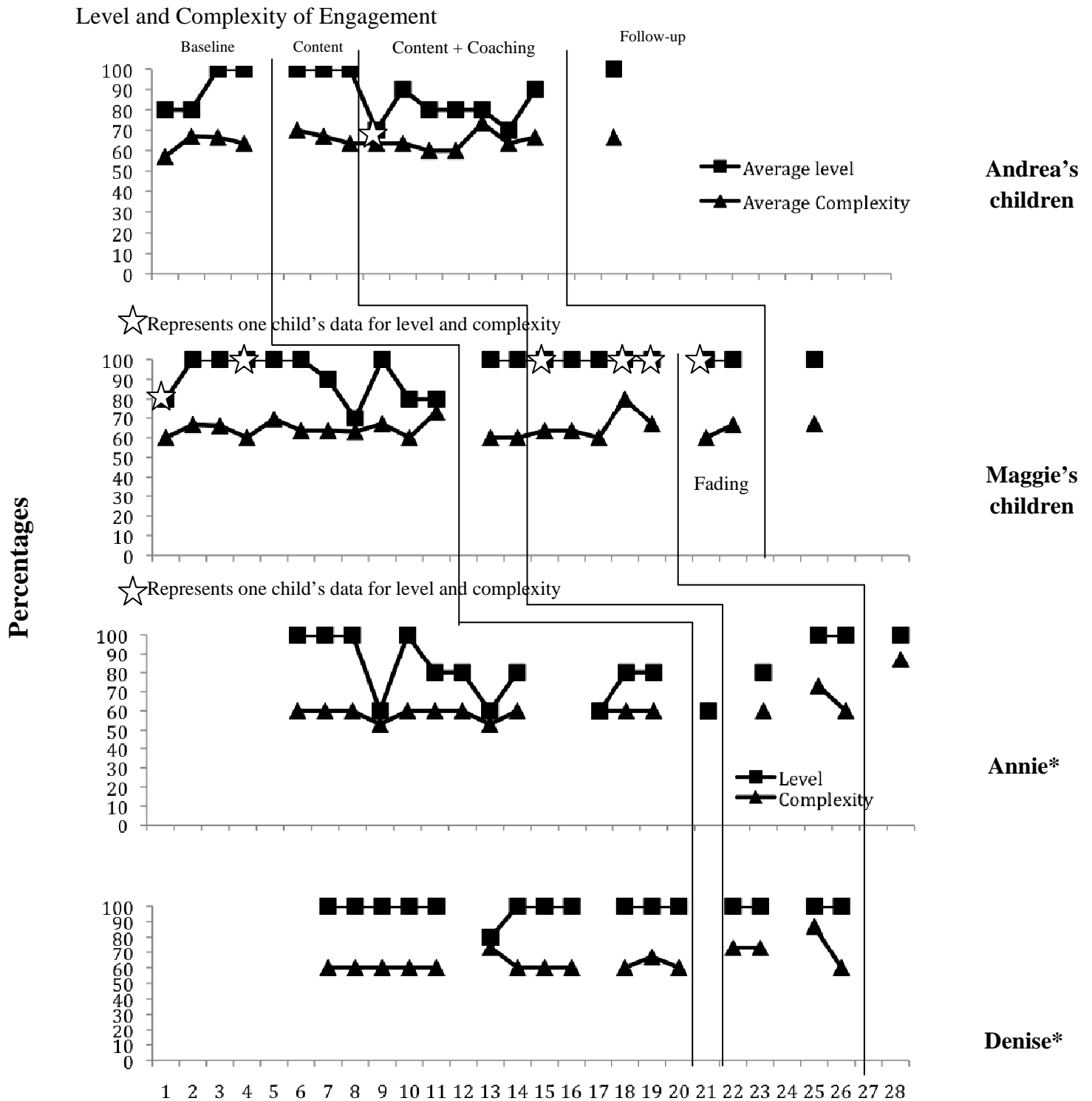


Figure 4



\*Annie and Denise are displayed individually. Data collection did not begin until session 7. Gaps indicate absences unless a phase change line is drawn

## Appendix A

Sample slide from technology enhanced platform



Figure A1

*Sample slide from technology enhanced platform*

Early Literacy Strategies file:///E:/multimedia/index.html

Early Literacy Strategies  
How to enhance shared book reading

**Completion, Recall, Open-ended, Wh-prompts, and Distancing prompts**  
**Commenting and asking questions about print and tracking your finger along print while you read.**

Self Check

Please indicate which dialogic reading or print referencing strategy could be used here.

1 of 1 8/2/2010 10:41 AM

*Figure A1:* Example slide taken from the platform that was a part of the intervention content provided to the teachers for this study. Teachers had already been provided with information about dialogic reading and print referencing strategies as well as having read through an example where the strategies were applied to a different book at the point where they were asked to apply the content here.

## Appendix B

Pre/post quiz for training session

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Circle one: Pre-Test          Post-Test

1. One of the best ways for children to learn language is simply listening to a story being read.

True          False

2. Children should have access to the book that was read at group time.

True          False

3. Quality of interactions between adults and children are critical to children's emergent literacy learning.

True          False

4. Development of early literacy skills is critical at the preschool age. Which of the following observations *best* supports this statement?

- A) Children in preschool can learn the skills easier and faster than older children
- B) Children who develop these skills in preschool are laying the foundation for later literacy development and increasing their chances of becoming more successful readers
- C) If the skills aren't learned in preschool, they may not be learned at all
- D) Activities for literacy skill development occur more frequently in preschool than in other grades

5. Evidence-based practices can be defined as practices that are:

- A) Recommended by one's professional organization in which they have been validated by experts
- B) Recognized and widely used by practitioners and adapted by schools and programs across the country
- C) A good idea which has been discussed as logical in practice.
- D) Combining the knowledge of both families and professionals to make decisions that benefit children

6. Write the letter of the emergent literacy skill with the statement that it best represents:

- A) Phonemic Awareness
- B) Print Awareness/Letter Knowledge
- C) Oral Language

\_\_\_\_\_ Relative to their same-age peers, children with larger vocabularies become more proficient readers than children with smaller vocabularies

\_\_\_\_\_ Knowledge of letter names before kindergarten is predictive of reading ability in late middle school and early high school

\_\_\_\_\_ This skill is strongly related to the acquisition of reading, even after accounting for other factors affecting reading ability, such as intelligence, receptive vocabulary, memory skills, and social class

Please read Mercer Mayer's *Just a Mess* and then answer questions 7 and 8.

7. On page 8 in Mercer Mayer's book *Just a Mess*, please indicate a print referencing strategy that could be used and provide a specific example of that strategy.

---

8. On pages 10 & 11 in Mercer Mayer's book *Just a Mess*, please indicate a dialogic reading strategy that could be used and provide a specific example of that strategy.

---

9. If you were reading a story for the very first time, which approach should you be following?

- A) Allowing the children to ask as many questions as they want
- B) Selecting 2-4 rare words to explain
- C) Reading very slowly
- D) Reading from beginning to end without pause

10. The quality of interactions between adults and children is an important consideration during book reading. Which of the following *best* describes what quality of interactions would look like?

- A) Smiling, making positive comments, using gestures and facial expressions
- B) Allowing the children to make comments and ask questions of their own
- C) Asking questions and making comments throughout the story
- D) Encouraging the children to wait until the end of the story to comment or ask questions

## Appendix C

### Teacher behavior coding sheets

## Indicator of Parent-Child Interaction (IPCI) original version

### Indicator of Parent-Child Interaction (IPCI) Rating Cover Page

Child's Name:\_\_\_\_\_ Test Date:\_\_\_\_\_

Language of Administration (use existing dropdown list)

Test Duration (dropdown list with 1-10 minute range)

Interaction Activity(s) (select all that apply):

Free Play    Book    Distraction    Dressing    Overall

Assessment Location (use existing dropdown list)

**If at home**, please indicate the relationship of the parent/caregiver to the child (dropdown list with the following):

- ☐ Biological Mother
- ☐ Biological Father
- ☐ Other Father Figure
- ☐ Grandmother
- ☐ Aunt
- ☐ Foster Parent
- ☐ Other

**If at center**, please indicate the relationship of the caregiver to the child (dropdown list with the following):

- ☐ Lead Teacher
- ☐ Teacher Aide
- ☐ Other Paraprofessional
- ☐ Other Professional

Assessor Description (dropdown list with the following):

- ☐ Early Head Start Home Visitor
- ☐ Other EHS Staff
- ☐ Part-C Home Visitor
- ☐ Other Part-C Staff
- ☐ Early Childhood Mental Health Specialist
- ☐ Other

#### Service Provider

- ☐ None
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Social Worker
- ☐ Counselor
- ☐ Nurse
- ☐ Parent-Aide/Family Advocate
- ☐ Early Intervention Home Visitor
- ☐ Speech/Language Therapist
- ☐ Physical Therapist
- ☐ Occupational Therapist

Did any factors interfere with assessment?    ☐ NO                      ☐ YES

**If Yes**, please specify:

- ☐ Child illness
- ☐ Parent illness
- ☐ Interruption:\_\_\_\_\_
- ☐ Other:\_\_\_\_\_

Note:\_\_\_\_\_

# Indicator of Parent Child Interaction (IPCI) Rating Sheet

Place an X in the gray box below for each activity observed. Then proceed to record tallies in clear boxes below each activity for each item listed at the left. After observing each activity, circle your Overall rating below for each item.

<b>Never = 0</b> (Never) <b>Rarely/Mild = 1</b> (Once; Mild for Cg Interrupters and Child Distress) <b>Sometimes = 2</b> (Inconsistently) <b>Often/Severe = 3</b> (Often, Consistently; Severe for Cg Interrupters and Child Distress) <b>No Opportunity = N/O</b> (No Opp. to observe)		Free Play	Looking at Books	Distraction	Dressing	Overall
						Never = 0 Rarely/Mild = 1 Sometimes = 2 Often/Severe = 3 No Opportunity = N/O
Caregiver Facilitators	(1) Acceptance/Warmth					0 1 2 3
	(2) Descriptive Language					0 1 2 3
	(3) Follows Child's Lead					0 1 2 3
	(4) Maintains and Extends					0 1 2 3
	(5) Stress Reducing Strategies					0 1 2 3
		N/O	N/O	N/O	N/O	N/O
Caregiver Interrupters	(1) Criticism/Harsh Voice					0 1 2 3
	(2) Restrictions/Intrusions					0 1 2 3
	(3) Rejects Child's Bid					0 1 2 3
		N/O	N/O	N/O	N/O	N/O
Child Engagement	(1) Positive Feedback					0 1 2 3
	(2) Sustained Engagement					0 1 2 3
	(3) Follow Through					0 1 2 3
		N/O	N/O	N/O	N/O	N/O
Child Reactivity/ Distress	(1) Irritable/Fuss/Cry					0 1 2 3
	(2) External Distress					0 1 2 3
	(3) Frozen/Watchful/Withdrawn					0 1 2 3

	Caregiver Facilitators	Caregiver Interrupters	Child Engagement	Child Reactivity/ Distress	TOTALS	
Primary Coder					PC <sub>TOTAL</sub>	Overall %
Reliability Coder					RC <sub>TOTAL</sub>	Agreement
Agreement					A <sub>TOTAL</sub>	A/A+D =
Disagree- mint					D <sub>TOTAL</sub>	
Percent						

#### Determining Reliability:

1. Record Primary coder scores in first line
2. Record Reliability coder scores in second line
3. Record the number on which they agreed on the third line
4. Record the number on which they disagreed on the fourth line
5. Calculate Percent Agreement for each Key Element category
6. Calculate Overall Percent Agreement using total scores
7. Calculate Average Percent Agreement across categories (add agreements and disagreements across categories (third and fourth lines)

Formula for determining percent agreement:

$$\frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100$$



Teacher Rate per Minute and Fidelity Measurement Sheet

Date: Teacher: Session #/Length:									
<u>Interval in minutes</u>									Total = Sum of top/minutes in the session
0.0 – .59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
1.0 – 1.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
2.0 – 2.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
3.0 – 3.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
4.0 – 4.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
5.0 – 5.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
6.0 – 6.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
7.0 – 7.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
8.0 – 8.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
9.0 – 9.59	C [ ]	R [ ]	O [ ]	W [ ]	D [ ]	O/P [ ]	C/P [ ]	T/F [ ]	
Total – # of strategies in each column	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

	C	R	O	W	D	O/P	C/P	T/F	Total – W/Y:N
Fidelity	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Quality Rating Index for Teacher/Child Interactions

Date:					
Teacher's Name:					
Session #:					
Session Length:					
<b>Teacher Facilitators</b>					
	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Often</b>	<b>No Opportunity</b>
1. Acceptance/Warmth	0	1	2	3	
2. Uses Descriptive Language	0	1	2	3	
3. Follows child's lead	0	1	2	3	
4. Introduces/Extends	0	1	2	3	
5. Responds to distress	0	1	2	3	
Total = _____ out of 15 _____ %					
<b>Teacher Interruptions</b>					
	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Often</b>	<b>No Opportunity</b>
1. Criticism/harsh voice	0	1	2	3	
2. Restrictions	0	1	2	3	
3. Rejects child's bid	0	1	2	3	
Total = _____ out of 9 _____ %					

\* Note. Adapted from Indicator of Parent-Child Interaction (Baggett, Carta & Horn, 2006)

\*\*Scoring Hint: While you are observing, make a tally mark on the rating sheet next to an item each time you observe an example that meets the definition. When you are ready to rate this item after the session is complete, count the number of tally marks you have made and consider these before rating this item

\*\*\*If no opportunity is indicated, reduce by 3 for all no opportunity. Those grayed out cannot be marked as no opportunity

Quality Rating Index for Teacher/Child Interactions (Definitions & Examples)

Behavior	Definition	Example	Non-Example
<b>Teacher Facilitators</b>			
Acceptance/Warmth	<ul style="list-style-type: none"> <li>Smiling</li> <li>Making a positive comment to or about the child</li> <li>Agreeing with something child has said</li> <li>Indicating appropriate behavior</li> <li>Stating the child made a good effort</li> </ul>	<p>Teacher smiles and says, "Good job that was a great answer!"</p> <p>Teacher smiles and says, "You are doing a great job listening."</p>	<p>Teacher responds in a flat, monotone voice</p> <p>Child becomes frustrated and teacher inappropriately responds, e.g. laughs</p>
Uses Descriptive Language	Rated based upon teacher's use of descriptive language and imitation or expanding on the child's interests and vocalizations	Child is looking at the book and says, 'There is a duck.' The teacher responds 'That's right, the duck is waddling down to the pond.'	<p>Simply naming colors, counting, or naming off objects</p> <p>Making sounds, repeating words, making brief statements</p>
Follows child's lead	Following child's lead by noticing what the child is interested in and commenting on the child's interest	Child says, 'That girl seems sad, I was sad the other day,' and teacher responds 'Can you tell me what happened?'	The child says, 'That girl seems sad,' and teacher responds 'So let's move on and talk about what's on the next page.'
Introduces/extends to maintain or extend child focus	Teacher introduces materials or voice in a novel or interesting manner to maintain and/or extend the child's focus. Teacher may use words, voice tone, facial expressions, and gestures in an interesting way	Teacher turns the page and with a surprised expression and a hand over her mouth says, 'Oh my gosh, I can't believe what happens next!'	Teacher reads through book with a monotone voice, few or no gestures, and little or no change in facial expressions
Responds to distress	Teacher responds appropriately through the following strategies: <ul style="list-style-type: none"> <li>Slowing pace</li> <li>Using softer voice</li> <li>Providing a brief pause in interaction</li> </ul>	Child becomes frustrated or disinterested during activity and teacher slows down and specifically engages child to reacquire interest	Child becomes frustrated and/or disinterested teacher continues on with activity, ignoring the distress
<b>Teacher Interruptions</b>			
Uses criticism or harsh voice	Critical statements or harsh, sarcastic, or raised voice	Child is talking to a peer and teacher says in a loud and harsh voice, 'Bobby, stop that right now!'	Use of a flat or monotone voice without warmth
Uses restrictions	Restrictions include statements such as: "No, Don't, Stop, Quit."	Child reaches over to touch a peer and the teacher says, 'No, stop it.'	Child reaches over to touch a peer and the teacher says in a firm but kind voice, "Bobby, your friends like gentle touches, but right now it is time to keep our hands to ourselves. Please put your hands in your lap."
Rejects child's bid	Includes words or gestures that the teacher uses (specifically in response to a child's seeking support, help, or attention from the teacher) that explicitly convey that the child is not to interrupt teacher or seek teacher's attention	Child raises hand and asks the teacher, 'Can I tell you something that I know?' and the teacher responds, 'Not now, we are reading a story.' OR ignores the child's question	Child raises hand and asks the teacher, 'Can I tell you something that I know?' and the teacher responds, 'Sure, let me finish this page and then you can share your story.'

Note. Adapted from Indicator of Parent-Child Interaction (Baggett, Carta & Horn, 2006)

Appendix D

Child Behavior Recording Sheets

### Scale for Teachers' Assessment of Routines Engagement

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**Directions:** Observe the child for a minimum of 10 minutes in each of the following routines. First, rate the amount of time the child is engaged with adults, peers, and materials. Second, estimate the number of minutes spent in each level of engagement. For example, a child could spend approximately 3 minutes nonengaged, 1 minute in unsophisticated, 4 minutes in average, and 2 minutes in sophisticated. *Be sure that the total number of minutes adds up to 10 (i.e., the number of minutes you observed the child).*

Arrival	None of the time	Little of the time	Half of the time	Much of the time	All of the time
<i>With Adults</i>	1	2	3	4	5
<i>With Peers</i>	1	2	3	4	5
<i>With Materials</i>	1	2	3	4	5
Level of Engagement*	Nonengaged	Unsophisticated	Average	Advanced	Sophisticated

### Level and Complexity of Child Engagement

Shared book reading <u>Session</u>						
Engagement with adult	1	2	3	4	5	

Shared book reading <u>Session</u>						
Complexity* (Beginning)	1	2	3	4	5	
Complexity* (Middle)	1	2	3	4	5	
Complexity* (End)	1	2	3	4	5	

Total for E = total of E row/5 (measured one time upon completion of session)

Total for C = total of all C rows/15 (measured three times during session)

*\*Note.* Adapted from Scale for Teacher's Assessment of Routines Engagement (McWilliam, 2000)

*\*\*Nonengaged* = inappropriate behavior (aggression, breaking rules, stares blankly, wanders around aimlessly, or cries); *Unsophisticated* = the child is casually looking around and is not focused on the teacher; *Average* = the child is following the routine as expected and is actively interacting with his or her surroundings; *Advanced* = the child uses understandable context-bound language (language that refers to a person or situation that is present); *Sophisticated* = the child uses understandable context-bound language (language that refers to a person or situation that is not present). To aid in deciding whether to score a child's complexity as a 3 or 4, make tallies for each of the beginning, middle, and ending sections of the book reading session. If a child has 2-3 comments (that meet the definitions above) during the section, score it as a 3. If a child has 3 or more comments (that meet the definitions above) during the section, score it as a 4. Comments scored as a 5 must meet the above definition of sophisticated to be scored as such.

## Appendix E

### Questions for assessing social validity

### Questions for assessing social validity

Demographic information on teachers and students

Teachers: age, years teaching, educational background, previous literacy trainings

Children: age, gender, SES, IEP, why you chose them

1. Tell me about your beliefs/philosophy around book reading. How do you think book reading contributes to literacy development?
2. Tell me your perceptions about the process of the study, i.e. how you felt about it, what was helpful, what could have been improved upon
3. Specific to the training (i.e. online session and coaching) tell me about the positives and/or areas for improvement
4. Did your beliefs about book reading change as a result of participation in this study? Why or why not?
5. In general, how could this experience have been improved



## Chapter 4

### From Research to Practice: Strategies for Supporting Early Literacy Development

#### Abstract

The purpose of this chapter is to utilize the knowledge gained from the literature review and research study to bridge the gap between research and practice. That is, how early childhood teachers can enhance their book reading sessions through the use of specific strategies and techniques, and ultimately, support children's early literacy skill development.

## Chapter 4

### From Research to Practice: Strategies for Supporting Early Literacy Development

*Annie is a teacher in an early childhood classroom located in a community child-care center. There are between 16 and 20 children in Annie's class, depending on the day, ranging in age from 3 to 5. As many of the children are in attendance all day, (i.e. 7:30 – 5:00), Annie is able to provide her children with a variety of age and developmentally appropriate activities throughout their day, including opportunities for reading books. Annie reads a story to her whole class at least twice per day. Annie's whole class book reading sessions typically last about 3-5 minutes and while she tries to incorporate strategies to promote discussions about the book during the sessions, it is difficult to do so consistently and to even know which of the strategies are the most effective. She feels like she is doing the best she can but wonders if there are specific strategies, techniques, etc that she can incorporate into her book reading sessions that will help engage her class and most importantly, enhance their learning.*

The development of early literacy skills is critical to children's later success in reading and reading related activities (Dickinson & Tabors, 2001; Snow, Burns, & Griffin, 1998), therefore, understanding how teachers can support early literacy development is equally important. The purpose of this paper is to provide information on how early childhood teachers can enhance their book reading sessions through the use of specific strategies and techniques, and ultimately, support children's early literacy skill development. The information to be addressed includes: a) the importance of early literacy skill development in general, (b) specific early literacy strategies that can be used within the context of book reading, (c) the importance of the quality of interactions between teachers and children during book reading, and (d) helpful

tips to consider during a book reading session. The following sections will discuss each of these items in further detail.

### **Importance of Early Literacy Skill Development**

In order to optimize one's ability to support young children's early literacy skill development during the preschool years, the early educator must have a solid understanding of impact on later reading success of children acquiring these skills. Further, early educators should know and understand the key aspects of early literacy. The importance of early literacy skill development as well as a discussion about what exactly early literacy is presented.

### **Impact of Skill Acquisition**

The acquisition of early literacy skills has become an important topic both in research (National Reading Panel, 2000; Neuman, Copple, & Bredekamp, 2000; Snow et al., 1998) as well as in national legislation with the enactment of the No Child Left Behind Act in 2001. Not only is early literacy skill development a focus for researchers and legislators, but it should also be a focus for early childhood educators, particularly for those who teach children between the ages of 3 and 5. Preschool teachers have the power to influence early literacy skill development and potentially impact children's later success in school. Consider the following. Early literacy skills in young children are being developed even before they become fluent readers, therefore, it is critical that these skills are being taught in preschool. In fact, literacy related behaviors and activities that take place during the preschool period are essential in beginning to lay the foundation for literacy development (Grace et al., 2008). Children who arrive at school (i.e. kindergarten) with a strong foundation in pre-literacy skills, compared to those who lack these foundational skills, are better prepared to engage in the task of learning to read and ultimately, become better readers in the long term.

We also know a great deal about children who do not acquire early literacy skills early on in their development. For example, we know that: (a) children who are poor readers in early elementary school often remain poor readers throughout the rest of their education (Lyon, 1998; Snow et al., 1998), (b) the long-term prognosis for poor readers does not improve with age, as documented by (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996), who found that 74% of children identified as poor readers in the third grade, remained poor readers in the ninth grade, and (c) children who lack these skills are not only at-risk for school failure but are also more likely to struggle with social and emotional issues, delinquency, and drug abuse (Whitehurst, 2001). Because of the pivotal importance of early literacy skill development as means to deter future potential problems with reading and reading related activities, it is clear that these skills should be addressed intentionally and specifically during the preschool years.

### **Early Literacy**

What is meant by early literacy skills? Early literacy can be thought of as the various skills, knowledge, and attitudes that develop prior to learning to read and write (Sulzby & Teale, 1991; Whitehurst & Lonigan, 1998) and the environments that support this development (Whitehurst et al., 1988). Four important aspects of early literacy are: (a) oral language, (b) phonological awareness, and (c) print awareness/letter knowledge (Allor & McCathren, 2003).

Oral language includes aspects such as vocabulary and basic concept development. Let's use Annie to demonstrate how these early literacy skills can be targeted. To support oral language skills, Annie could ask questions that encourage children to respond with more than just a one or two word answer. For example, "What do you notice about what the monkeys are doing?" Or if a child were to notice and comment about how the monkeys are hanging from the ceiling, Annie could expand upon what the child has noticed by saying, "Yes, they are hanging

from a chandelier. A chandelier is a big, fancy light that hangs from the ceiling.” Phonological awareness is an understanding that oral language is made up of sounds and/or groups of sounds. Annie could point out a sentence with 2 words and one with 6 words, thereby opening up a discussion about sentences that are long and short. Having children clap and count out syllables to words like ‘monkey’ and ‘hippopotamus’ is yet another way Annie could support phonological awareness.

Becoming aware of print means developing an understanding of the basic forms and functions of print. Examples of print awareness that Annie could use include pointing out the difference between words (e.g., McDonalds) and non-words (e.g., the 'M' as in golden arches) when they are displayed, and talking about how we read top to bottom and left to right. Letter knowledge is sometimes grouped in with print awareness, but essentially it means knowing how to quickly recognize and visually discriminate the visual shapes of letters (Allor & McCathren, 2003). If there are individual letters, for example Z’s above someone who is asleep, Annie could ask the children to identify that letter.

### **Teaching Early Literacy Skills within the Context of Book Reading**

Many activities within preschool classrooms support early literacy development, however, book reading seems to be a particularly powerful platform for introducing and enhancing this skill set (Bus, van IJzendoorn, & Pellegrini, 1995; Lonigan, 1994; Scarborough & Dobrich, 1994; Whitehurst & Lonigan, 1998). Generally speaking, books are a great learning tool for young children. Books are pleasurable and experiences with books build a positive attitude toward future reading (Dickinson & Tabors, 2001). Books allow children to be exposed to the language of those books, language that is different from everyday conversational language, which can be important for later reading experiences. Through experiences with books, children

develop an understanding about print, for example, that books are read from top to bottom and right to left, as well as the fact that print carries meaning. Finally, access to books that children have heard before, either through group or individual readings, encourages children to want to pick up that book and “read” it on their own! While simple access to books is critically important for children’s development, so too are the interactions that take place during the reading of a book.

Adult/child interactions with books such as asking questions and making predictions can facilitate language development (Dickinson & Tabors, 2001). In fact, these interactions are a great way for children to learn language, above and beyond just simply listening to the story being read. Research with preschool children has shown that when adults increase children's access to books and enhance the quality of how the books are read, their language and early literacy development increases (Bus et al., 1995). Furthermore, the adult's attitude and way of interacting with children around books affects the children's interest in and response to literature. While reading is important in and of itself, discussion between the teacher and children about the text and pictures is the critical element in increasing children's language skills and vocabularies. Children who have many experiences with books during their preschool years often become good readers (Dickinson & Tabors, 2001). Furthermore, book reading sessions can be further elevated through the use of specific strategies, dialogic reading and print referencing, both having strong evidence for their effectiveness (Justice & Pullen, 2003; Whitehurst, 2001). The strategies of dialogic reading and print referencing will each be discussed below followed by a brief discussion on the role of appropriate book selection in enhancing the positive impacts of book reading on young children.

### **Dialogic Reading**

Dialogic reading is an approach to reading that engages the child by making them an active participant in the story (Whitehurst, 2001). More than just simply reading the story to children, this approach becomes more of a conversation between you as the adult and the children. At the heart of this strategy are frequent interactions between adults and children, and as you may guess, interactions translate into dialogue in the form of talking and discussions. Dialogue is encouraged through the use of specific prompts. These specific prompts, as outlined by Whitehurst and colleagues (1994), align with the acronym *CROWD* and are specified as follows: (a) *completion* prompts, *recall* prompts, *open-ended* prompts, *wh-prompts* (who, what, where, and why questions), and *distancing* prompts.

Again, let's return to Annie as we talk about each of these prompts individually. Completion prompts allow the children to provide missing word or words in order to complete a sentence. For example Annie could provide the statement, "Brown bear, brown bear....." allowing the children to add "what do you see?" Completion prompts are easier to use after children have been exposed to a book more than one time and opportunities for repetition of words and or phrases are available. Recall prompts involve asking the children to remember specific aspects of the story. For example, questions like: "What happened when..." "What do you remember....?" and asking questions at the end of the book reading about what happened throughout, are all great ways for Annie to use recall prompts. Open-ended prompts lend themselves to requiring the children to respond with more than just a one or two word answer. Also, consider limiting the number of open-ended questions that require only a yes or no response as this challenges the children to provide a more complex response. Examples of open-ended prompts that Annie could use include: (a) "What do you think...?" (b) "How do you know...?" and (c) "What was your favorite part of the story?" Prompts in the form of "wh"

questions are the familiar *who, what, when, where, and why*. These types of prompts are sometimes the most frequent and at times the easiest questions to ask, for example, “What is happening here?” “Why is he doing that?” and “Who is helping her?” Finally, distancing prompts require making a connection to children’s background experiences, and for that reason, can be more challenging to generate. Having read the book beforehand and thought about how the book can tie to what children potentially already know can help ease the use of this strategy. Ways in which Annie can incorporate distancing prompts include asking questions such as, “Have you ever...?” or “What do you know about....?” Table 1 provides further definitions and examples for each of these strategies.

To recap dialogic reading, use of these strategies helps to transform a typical book reading session into a conversation that takes place between adults and children. The conversations are initiated when children are prompted for responses based upon the content of the book. Keep in mind the acronym C.R.O.W.D as it will help with remembering each of the types of prompts that can be used. The second strategy that can be used within the context of storybook reading is print referencing, which is discussed in the next section.

### **Print Referencing**

Print referencing is a technique that is used to draw children’s attention to print, specifically print within a story (Justice & Pullen, 2003). The premise behind print referencing is that increased attention to print ultimately means that children are noticing and learning about print more quickly. To facilitate attention to print, the teacher utilizes both verbal and nonverbal techniques. There are three specific components to print referencing: (a) questions about print, (b) comments about print, and (c) tracking your finger along print while you read (Justice & Ezell, 2004).



Questions and comments about print (i.e. verbal techniques) allow the teacher to highlight print that is different or unique on the pages of a book (Justice & Ezell, 2004). Children often do not see these subtle differences in print unless it is directly pointed out to them. Annie could incorporate questions about print by asking, “What do you think this sign says?” or “What is different about how this word is written compared to these other words?” Comments about print that Annie could make include, “He has a #1 written on his hat.” or “Notice on this page there is a list of all of the things the crocodile wants to do today.” Additionally, tracking words on a page with your finger (i.e. nonverbal technique) also encourage children to connect with specific letters and/or words as they are being read. Particularly with books that use the same word and/or phrase repeatedly throughout, pointing to specific words can help children to recognize and perhaps even begin to read those words on their own! How can print referencing strategies be incorporated? Again, let’s use Annie as a model. Annie noticed there were color words written in the same color font (i.e. the word blue written in blue) in the book she was reading. After pointing out these color words to the children they were able, during the next book reading, to name these words independently when she pointed to them. Table 2 provides definitions and specific examples of print referencing strategies.

To recap print referencing, this technique involves both verbal (questions and comments) and nonverbal (tracking finger along print) references to print. The goal of print referencing is to really get children to notice print so they become aware that there are more than just pictures on the pages of books they are being exposed to. There are letters, words, and sentences which when put together, tell a story!

### **Book Selection**

Book selection is an important and often overlooked component when considering the impact that book reading can have on children's development. Books for children at the preschool level are abundant and easily accessible. However, ease and accessibility should not completely dictate the types of books that are chosen for book reading. The following information should be given careful thought. Books that relate to everyday experiences can help keep a child's interest (Shedd & Duke, 2008). A story becomes a favorite because the child values its meaning. The storyline of the book should be strong, clear, and logical. The length of the book and the number of words on each page is also critical. Children at the preschool level have a very fluid duration of time for engaging with and attending to book reading sessions. Sessions that last beyond 10-15 minutes generally challenge the children's attention span and can result in inappropriate or unwanted behaviors. Teachers can take full advantage of the time they do have children's attention and interest by choosing books that are developmentally and age appropriate.

Annie realized the importance of book selection during one of her recent book reading sessions. In keeping with her theme of animals, Annie chose a non-fiction book about a raccoon, one that she loved as a child and was excited about sharing with her class. However, after the book reading session was complete she realized the book, while providing great information, was too lengthy, was very dense in content, and overall was not engaging the children, all evidenced by their lack of attention and needing frequent redirection to the story. Becoming more aware of the books she was choosing in terms of how appropriate and ultimately how successful the book reading session could be, Annie realized, may require a bit of extra work but in the long run, may prove well worth the time spent.

Books that relate to social behaviors, such as friendship and sharing, are important and should reflect the similarities and differences in various cultures, race, gender, and individual capabilities. Further, books that have a nice variation of different kinds of print as well as those that have a beginning, middle, and end all allow for increased opportunities for implementation of the strategies previously discussed. If it is a struggle to consider what kinds of discussions could take place about the book, then it may be appropriate to choose a different story. Periodically use books that help can help to develop specific literacy skills, whether it is an alphabet book to develop letter/ sound knowledge or a rhyming book to work on phonological awareness (Shedd & Duke, 2008).

Books can serve multiple purposes. For example, a book about colors can offer new ideas and opportunities not only to teach colors but also to build knowledge or vocabulary related to objects in the book. Finally, re-reading the same book is not only very appropriate, but is also very beneficial in terms of children's level of learning. In fact, repetition helps children to develop their recall, sequencing, and communication and social skills, while broadening their knowledge base and helping them predict events. Children may also begin to understand sentence structure and perhaps even begin to add the new sentence structure and/or vocabulary they are hearing into their own conversations (Lewman, 1999; Shedd & Duke, 2008).

Recently Annie discovered a Dr. Seuss book, one that she was not familiar with but appeared to fit within her theme of body parts. She discovered that this book provided opportunities for children to rhyme, identify colors and color words, and read print on signs throughout the book. During the first reading of the book, Annie used the dialogic reading and print referencing strategies to highlight these and other features of the book. During the second reading of the book the children, familiar with the content after the first reading, were not only

able to respond to the prompts Annie was using, they were also able to independently identify some of the colors and color words, picked out some rhyming words, and remembered what the print on the signs was telling them. Annie realized that the combination of selecting of an appropriate book together with use of the strategies really made for a great learning experience for the children.

### **Quality of Interactions**

Keeping in mind what is known so far: (a) book reading is a great tool for supporting young children's early literacy development, (b) dialogic reading and print referencing are specific techniques that can be used to enhance book reading sessions, and (c) book selection can make or break a book reading session in terms of children's engagement and the ease of use of the suggested strategies, still more needs to be considered. Specifically, do the types of interactions between teachers and children make a difference? The next section discusses this question as well as provides information on what quality interactions look like.

### **Teacher/child Interactions**

Utilizing the evidence-based practices of dialogic reading and print referencing within the context of book reading is clearly an effective means by which teachers can support children's early literacy skill development. However, simple use of these strategies may not be enough. Creating a positive and engaging classroom atmosphere is one of the most powerful tools teachers can utilize to encourage children's learning. Although a number of factors contribute to a positive classroom atmosphere for example, classroom management, one important factor is the quality of the interactions that take place between adults and children. In fact, research points to the role of classroom processes such as interactions between adults and children as stronger predictors of child outcomes than other factors such as teacher education (Early et al., 2007).

In addition, children's language and literacy development has also been shown to be related to teacher-child interactions. There has been some support for the idea that direct contact between teacher's and children (i.e. interactions) is likely to affect a child's development and that information about these interactions are especially helpful in identifying which aspects of a child's classroom experiences have the most sustained impact on early literacy (Henk, Morrison, Thornburg , & Raya-Carlton, 2007). In fact, recent research has indicated that teacher interactions with children may be the best indicator of children's emergent literacy learning (Mashburn et al., 2008).

### **How Do You Do It?**

Teachers, like Annie, may wonder how they can enhance their quality of interactions with children or perhaps build upon what they are currently doing within their classrooms. There are several components to interaction quality to keep in mind. The first is conveying warmth and acceptance through such behaviors as: (a) smiling, (b) making positive comments to or about a child, (c) agreeing with something the child has said, (d) indicating appropriate behaviors, or (e) stating the child made a good effort. For example, Annie could smile and say, "Great job, that was a good answer!" Or, while smiling tell a child, "You are doing such a nice job listening!" This could be particularly powerful for those children who may not always be listening but you are able to catch them in the act and praise them for it! Second is the use of descriptive language as you imitate and/or expand upon a child's interests and vocalizations. For example, while a child is looking at the book they may say, "There is a duck." Annie, as the teacher could respond, "That's right, the duck is waddling down to the pond." Or when a child is looking at a book about spiders and says, "Wow, that spider is big!" Annie could respond by saying, "Yes it is big. And it can spin a silky and sticky web to catch its prey. Prey is another name for food." Third is

following a child's lead by noticing what the child is interested in and commenting on the child's interest. Child says, "That girl seems sad, I was sad the other day." And Annie responds, "Can you tell me what happened?" Or, while reading a book about the zoo, a child says "I see an elephant on that page." And Annie responds, "When have you seen an elephant before?" Finally, is introducing and or extending to maintain or extend a child's focus. Essentially this translates to the use of words, tone, voice, facial expressions, and/or gestures in an interesting way. As an example, Annie turns the page and with a surprised expression and a hand over your mouth say, "Oh my gosh, I can't believe what happens next!" The intonation, or the up and down of the voice while it seems silly sometimes, really does get the children interested in the story and generally makes the story even more fun and exciting. Furthermore, a positive, warm, supportive and emotional tone makes the children feel comfortable and hopefully encourages them to WANT to participate in the book reading session!

So let's return to Annie one last time. After becoming more comfortable with using the strategies of dialogic reading and print referencing during book reading sessions, she also discovered that she needed to reflect upon how she was facilitating, or perhaps not facilitating, quality interactions between herself and the children. She found that by allowing children to ask questions and make comments, elaborating on those questions and comments with positive feedback, and through reading the story with use of voices, gestures, and facial expressions, the book reading session was ultimately more fun and rewarding for both her and the children.

### **Helpful Tips to Consider During a Book Reading Session**

The use of dialogic reading and print referencing as well as an awareness of the quality of interactions between teachers and children collectively set the stage for optimal learning during

book reading sessions. However, there are other tips and tricks that, when intentionally and purposefully planned for, can make book reading sessions even more successful.

Children spend a lot of time throughout their day listening, so during storybook reading, let them do some of the talking and be active participants!! Reading books is an enjoyable activity for both you and the children so make it fun: show emotion with your face, voice, and body, be interested in the story and its content, make eye contact to check for understanding and/or determine if modifications are necessary, and most importantly, engage the children in the story! You may need to allow a few extra minutes during each and every storybook reading session so there is adequate time to incorporate these strategies. You may also need to incorporate some extra time for yourself prior to a book reading session so that you can read through the book in its entirety and have a plan for which strategies you will use. Arrange the environment so that all children can see and hear the story while it is being read. For some children having their own designated spot to sit (i.e. a carpet square) can help them to recognize their own space and hopefully help them stay engaged and be less distracted.

### **Conclusion**

Early literacy is critical, particularly in the preschool years. A solid foundation in early literacy skills has been shown to help decrease potential struggles that children could have in learning to read. Within the context of book reading, there are lots of strategies that could be used. Here, the focus was on the two evidence-based practices of dialogic reading and print referencing. Dialogic reading includes prompts (completion, recall, open-ended, wh, and distancing) and print referencing includes comments and questions about print as well as tracking your finger along print while reading. Remember the quality of your interactions with children DOES matter. While delivery of strategies and techniques that have been shown to be

effective is important, so is the way in which they are delivered. Think about using a positive, supportive tone. Follow the child's lead and expand upon what they say. Words, gestures, and facial expressions all convey your feelings about the topic and the activity, and the children pick up on those subtleties!



## References

- Allor, J.H., & McCathren, R.B. (2003). Developing emergent literacy skills through storybook reading. *Intervention in School and Clinic, 39*(2), 72-79. doi: 10.1177/10534512030390020201
- Bus, A.G., van IJzendoorn, M.H., & Pellegrini, A.D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research, 65*(1), 1-21.
- Dickinson, D. K., & Tabors, P. O. (Eds.). (2001). *Beginning literacy with language: Young children learning at home and school*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., Cai, K., Clifford, R.M., Ebanks, C., Griffin, J.A., Henry, G.T., Howes, C., Iriondo-Perez, J., Jeon, H-J., Mashburn, A.J., Peisner-Feinberg, E., Pianta, R.C., Vandergrift, N., & Zill, N. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development, 78*, 558–580.
- Francis, D. J., Shaywitz, S. E., Stuebing, K. K., Shaywitz, B. A., & Fletcher, J. M. (1996). Developmental lag versus deficit models of reading disability: A longitudinal, individual growth curves study. *Journal of Educational Psychology, 88*, 3-17.
- Grace, C., Bordelon, D., Cooper, P., Kazelskis, R., Reeves, C., & Thames, D.G. (2008). Impact of professional development on the literacy environments of preschool classrooms. *Journal of Research on Childhood Education, 23*(1), 52-81.
- Henk, J.K., Morrison, J.W, Thornburg, K.R., & Raya-Carlton, P. (2007). The efficacy of Heads-Up! Reading in Missouri on teacher's knowledge of emergent literacy: A satellite-based

- emergent literacy training course. *NHSA Dialog*, 10(1), 20-35. doi: 10.1080/15240750701301738
- Justice, L.M., & Ezell, H.K. (2004). Print referencing: An emergent literacy enhancement technique and its clinical applications. *Language, Speech, and Hearing Services in Schools*, 35, 185-193.
- Justice, L. M., & Pullen, P. C. (2003). Promising interventions for promoting emergent literacy skills: Three evidence-based approaches. *Topics in Early Childhood Special Education*, 23(3), 99-113. doi: 10.1177/02711214030230030101
- Lewman, B. (1999). Read it again. How rereading and rereading stories helps heighten children's literacy. *Children and Families*, 8(1), 12-15.
- Lonigan, C. J. (2004). Emergent literacy skills and family literacy. In B. Wasik (Ed.), *Handbook of family literacy* (pp. 57–82). Mahwah, NJ: Erlbaum
- Lyon, G. R. (1998). Why learning to read is not a natural process. *Educational Leadership*, 3, 14-18.
- Mashburn, A., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., & Burchinal, M. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79, 732–749. doi: 10.1111/j.1467-8624.2008.01154.x
- National Reading Panel (2000). *Teaching children to read*. U.S. Department of Health and Human Services. Washington, D.C.
- Neuman, S.B., Copple, C., & Bredekamp, S. (2000). *Learning to read and write: Developmentally appropriate practices for young children*. Washington, D.C.: NAEYC.

- Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review, 14*, 245–302.
- Shedd, M.K., & Duke, N.K. (2008). The power of planning: Developing effective read-alouds. *Young Children, 63*(6), 22-27.
- Snow, C.E., Burns, M.S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, D.C.: National Academy Press.
- Sulzby, E., & Teale, W. (1991). Emergent literacy. In R. Barr, M. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (vol. 2, pp. 727–58). New York: Longman.
- Whitehurst, G. J. (2001). *Address to the White House Summit on Early Childhood Cognitive Development*, Washington DC. Retrieved May 31, 2010 from [http://www2.ed.gov/news/pressreleases/2001/07/07262001\\_whitehurst.html](http://www2.ed.gov/news/pressreleases/2001/07/07262001_whitehurst.html)
- Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A.C., Crone, D. A., & Fischel, J. E. (1994). Outcomes of an emergent literacy intervention in Head Start. *Journal of Educational Psychology, 86*, 542-555.
- Whitehurst, G. J., Falco, F. L., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca, M. C. (1988). Accelerating language development through picture book reading. *Developmental Psychology, 24*, 522 – 559.
- Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 69*, 848–872.

Table 1

*Dialogic Reading Prompts and Examples of their Use*

<b><u>Prompt</u></b>	<b><u>Example</u></b>
Completion – completing a sentence with familiar word(s)	<p><i>Brown Bear Brown Bear, What do you see?</i> Eric Carle</p> <p>“Brown bear brown bear....._____?”  “Purple cat purple cat....._____?”  (Complete with the words “what do you see”)</p>
Recall – remembering some aspect of the story (e.g. words, pictures, character, plot)	<p><i>The Very Hungry Caterpillar</i> Eric Carle</p> <p>“Can you remember some of the foods that the caterpillar ate?”</p> <p>“What did he turn into at the end of the story?”</p>
Open-ended – requires more than just a one or two word response	<p><i>I Was So Mad</i> Mercer Mayer</p> <p>“What was your favorite part of the book?”</p> <p>“How could the story have ended differently?”</p>
Wh-prompts – <i>who, what, when, where, why</i>	<p><i>Rosie’s Walk</i> Pat Hutchins</p> <p>“Who was Rosie trying to get away from?”</p> <p>“Why do you think she was trying to get away from the fox?”</p> <p>“Where were some of the places that she walked?”</p>
Distancing – connecting the story with children’s background knowledge	<p><i>The Little Red Hen</i> Byron Barton</p> <p>“Has anyone ever made bread before?”</p> <p>“Have you ever needed help with something before and no one would help you?”</p>

Table 2

*Print Referencing Strategies and Examples of their Use*

<b><u>Strategy</u></b>	<b><u>Example</u></b>
Comments about print – talking about print on a page	<i>Oh My Oh My Oh Dinosaurs</i> Sandra Boynton “Look on this page you can see numbers above the elevator.”
Questions about print – asking questions about print on a page	<i>Oh My Oh My Oh Dinosaurs</i> Sandra Boynton “What do you notice about the words ‘big’ and ‘tiny’ on this page?” (the word ‘big’ is written very large and the word ‘tiny’ is written very small)
Tracking your finger – point to each word as it is read	Simply pointing to the words as they are read